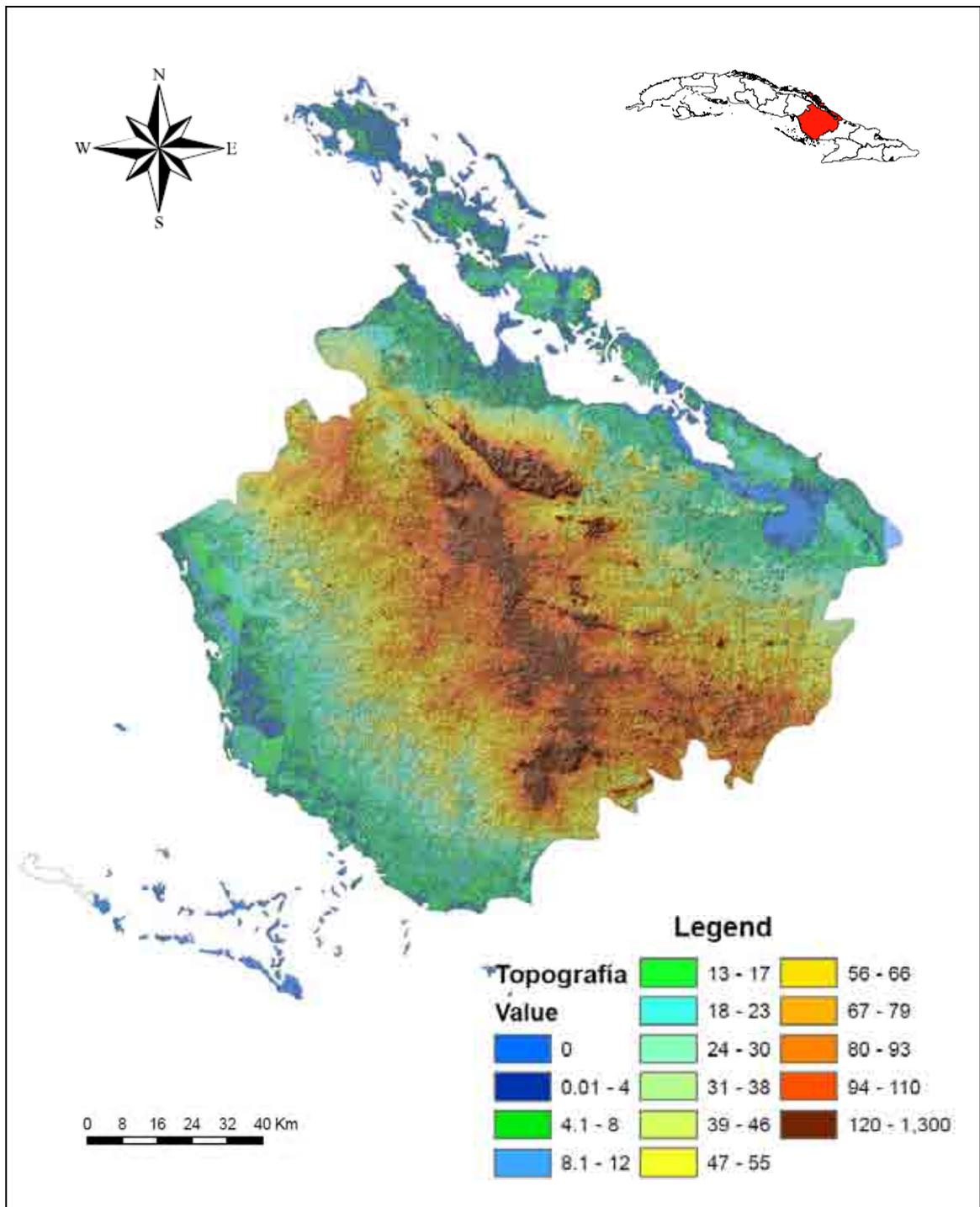


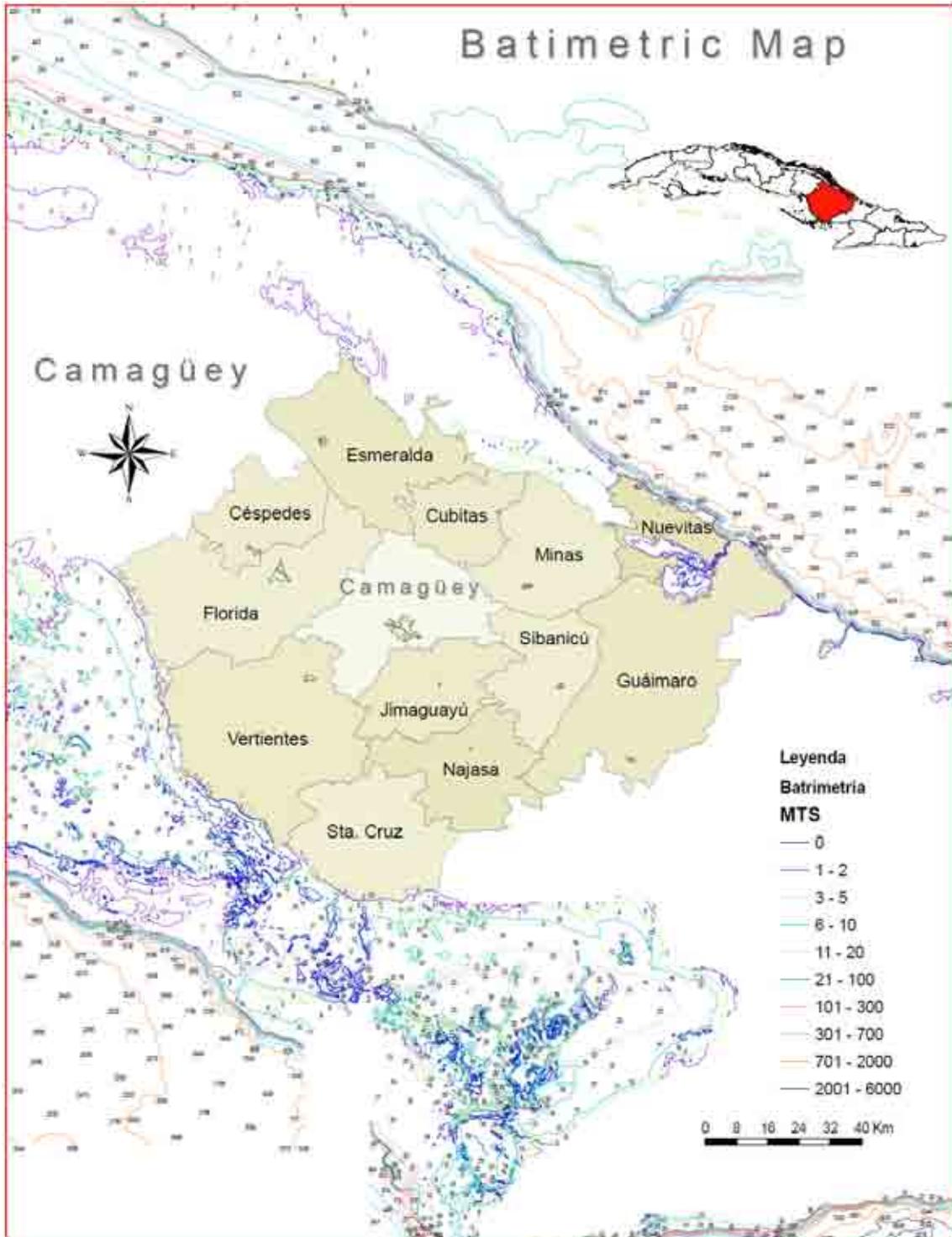
1.3 Ejemplos de planos elaborados con SIG

Provincia de Camagüey

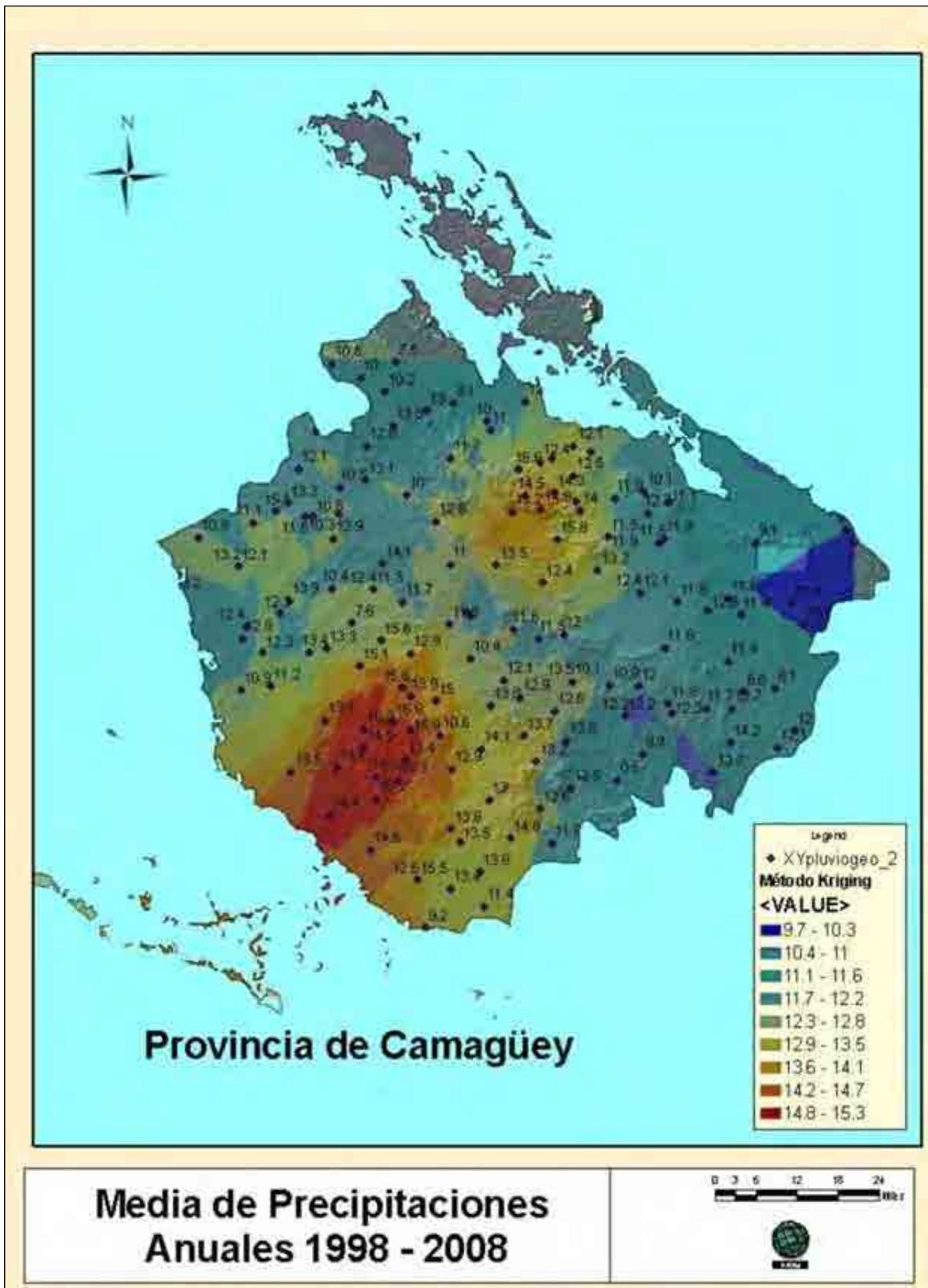
Topography Map of Camaguey Province



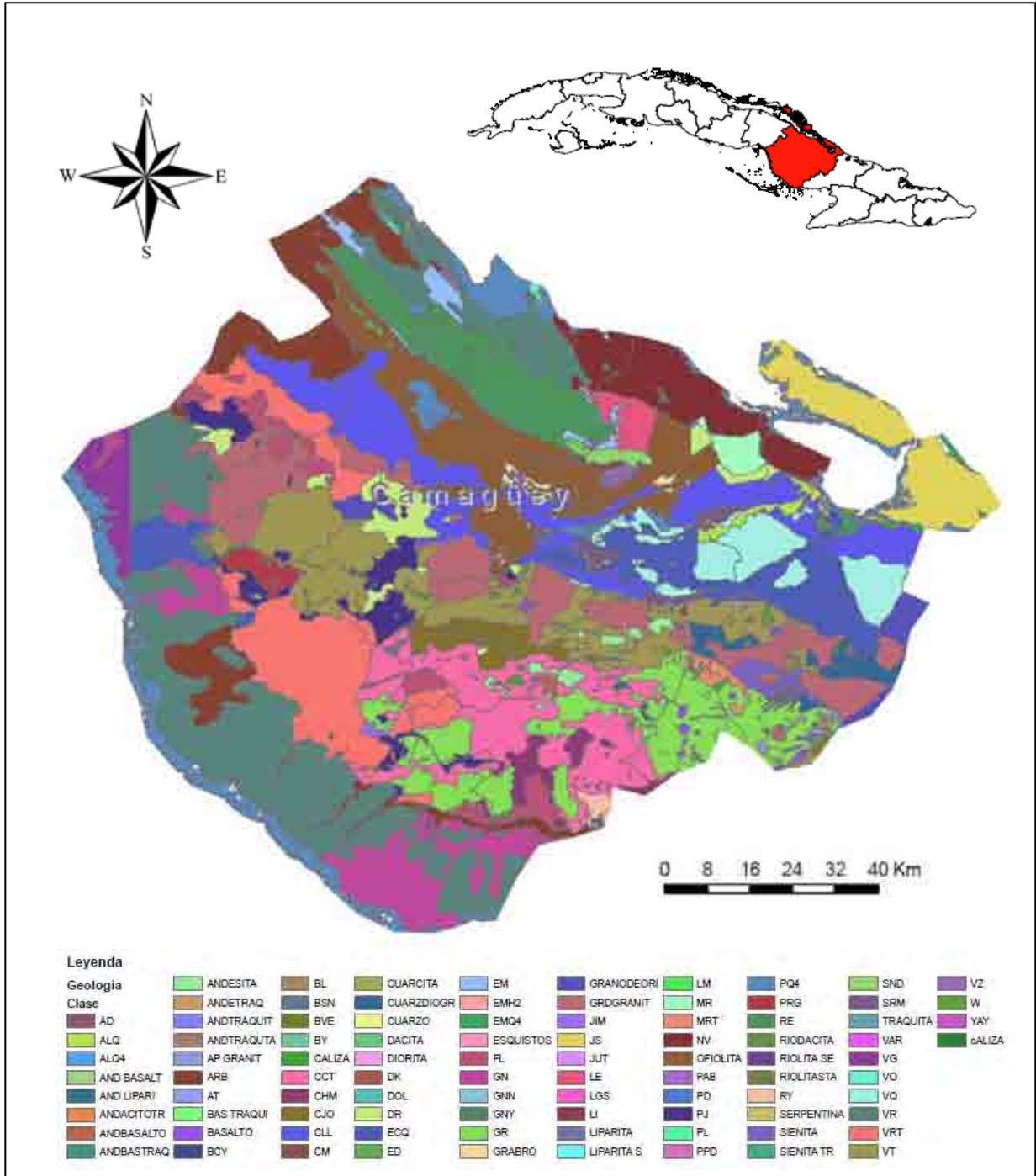
Depth of Sea Bottom Around Camaguey Province

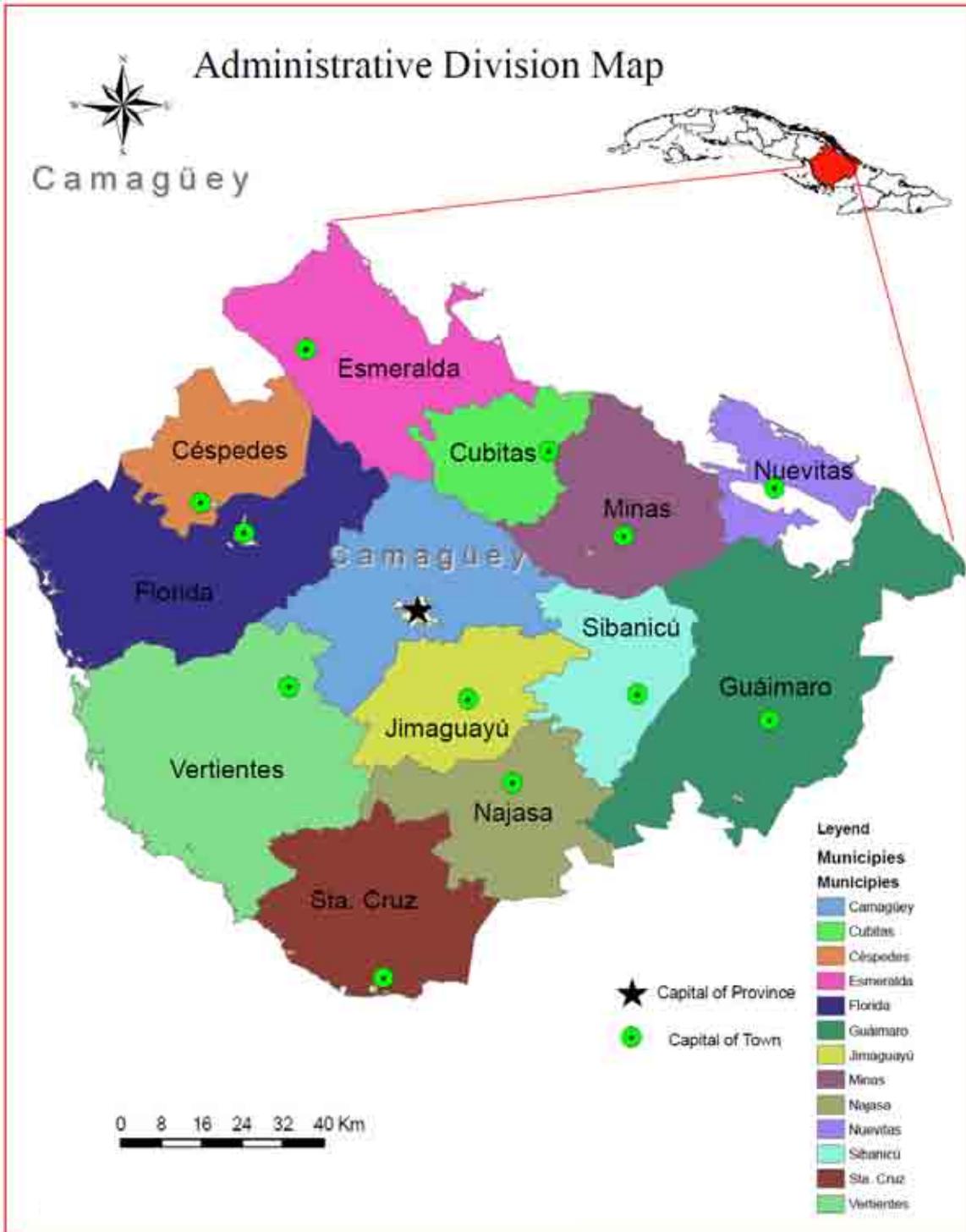


Average Precipitation in Camaguey Province

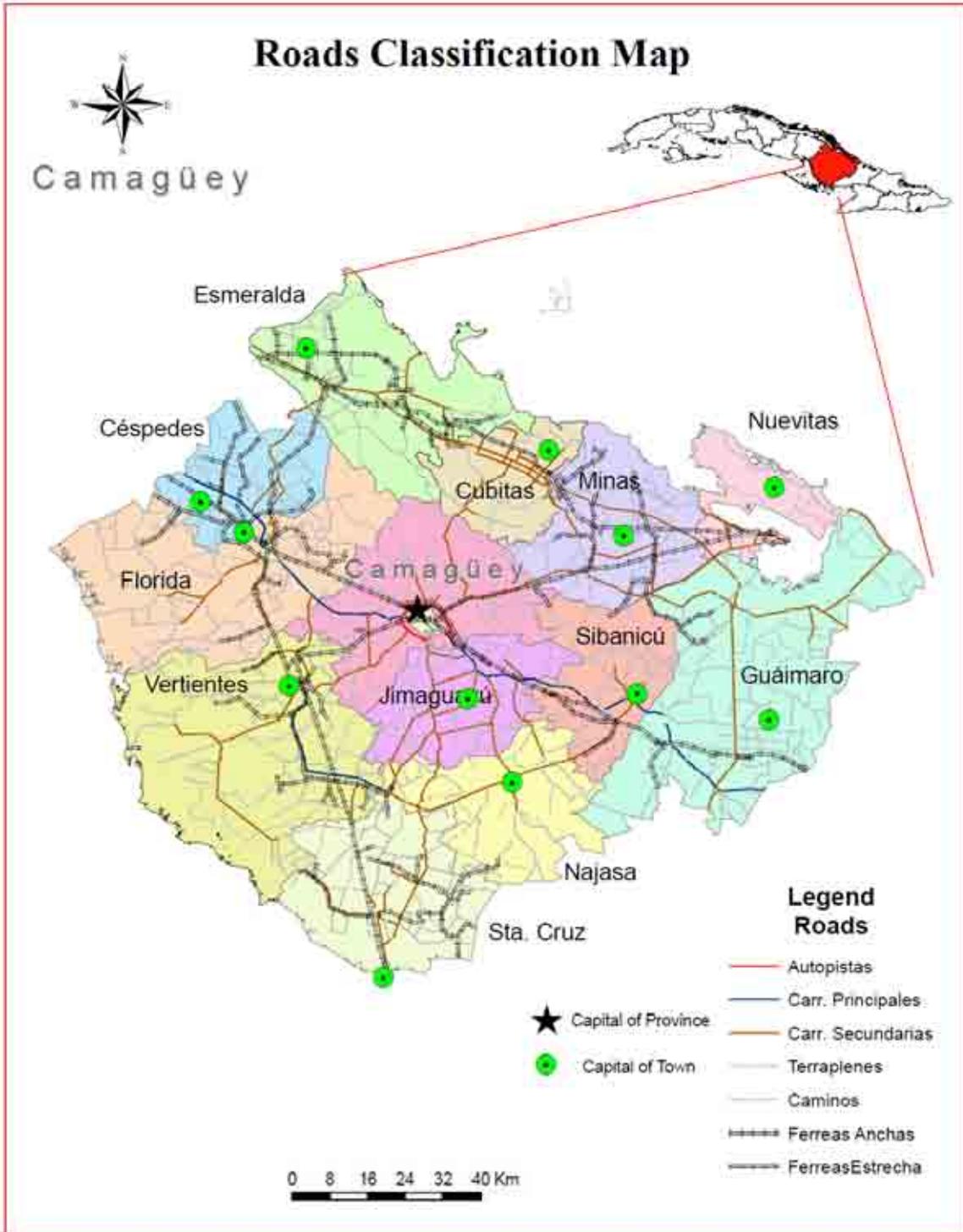


Geology Map of Camaguey Province

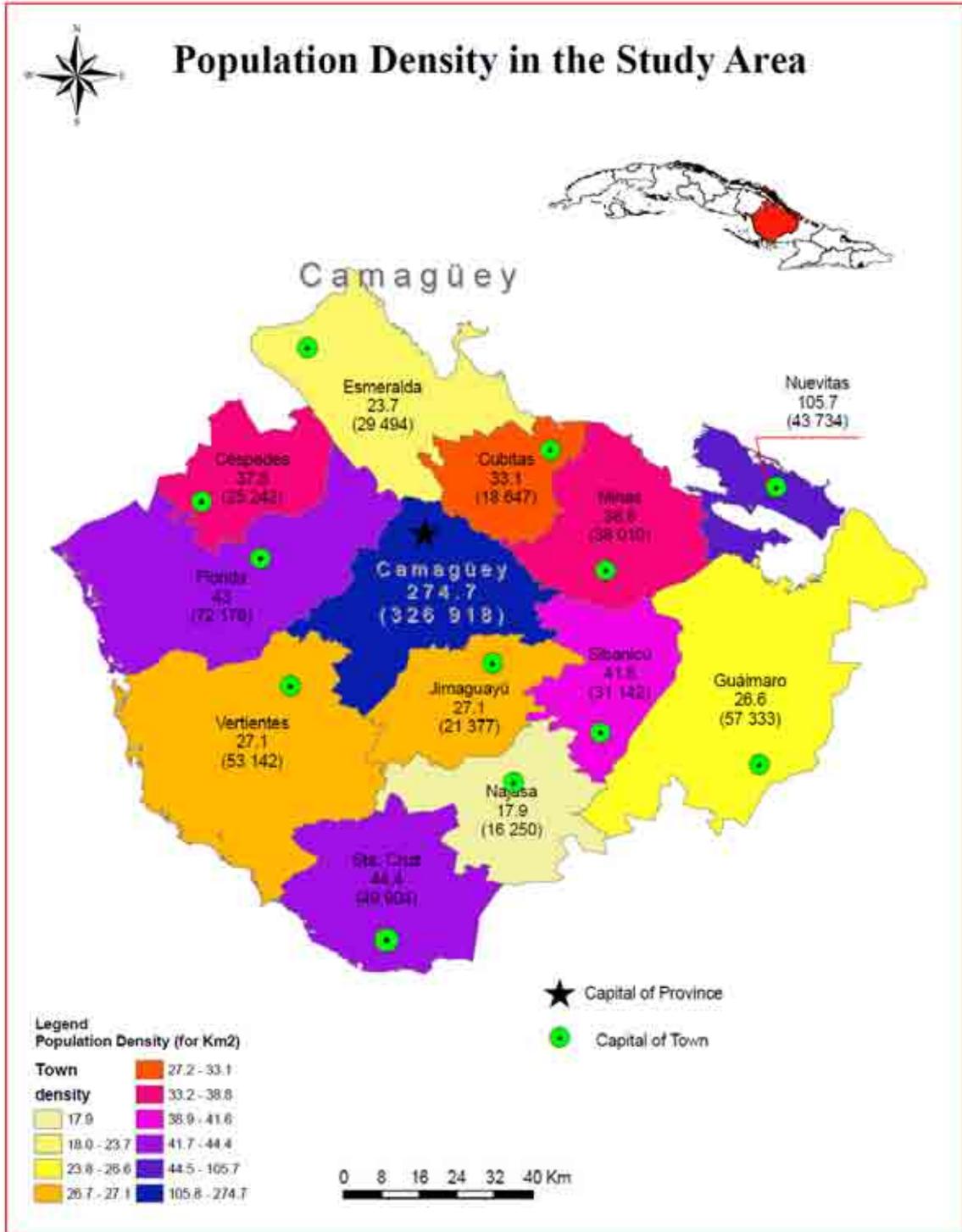




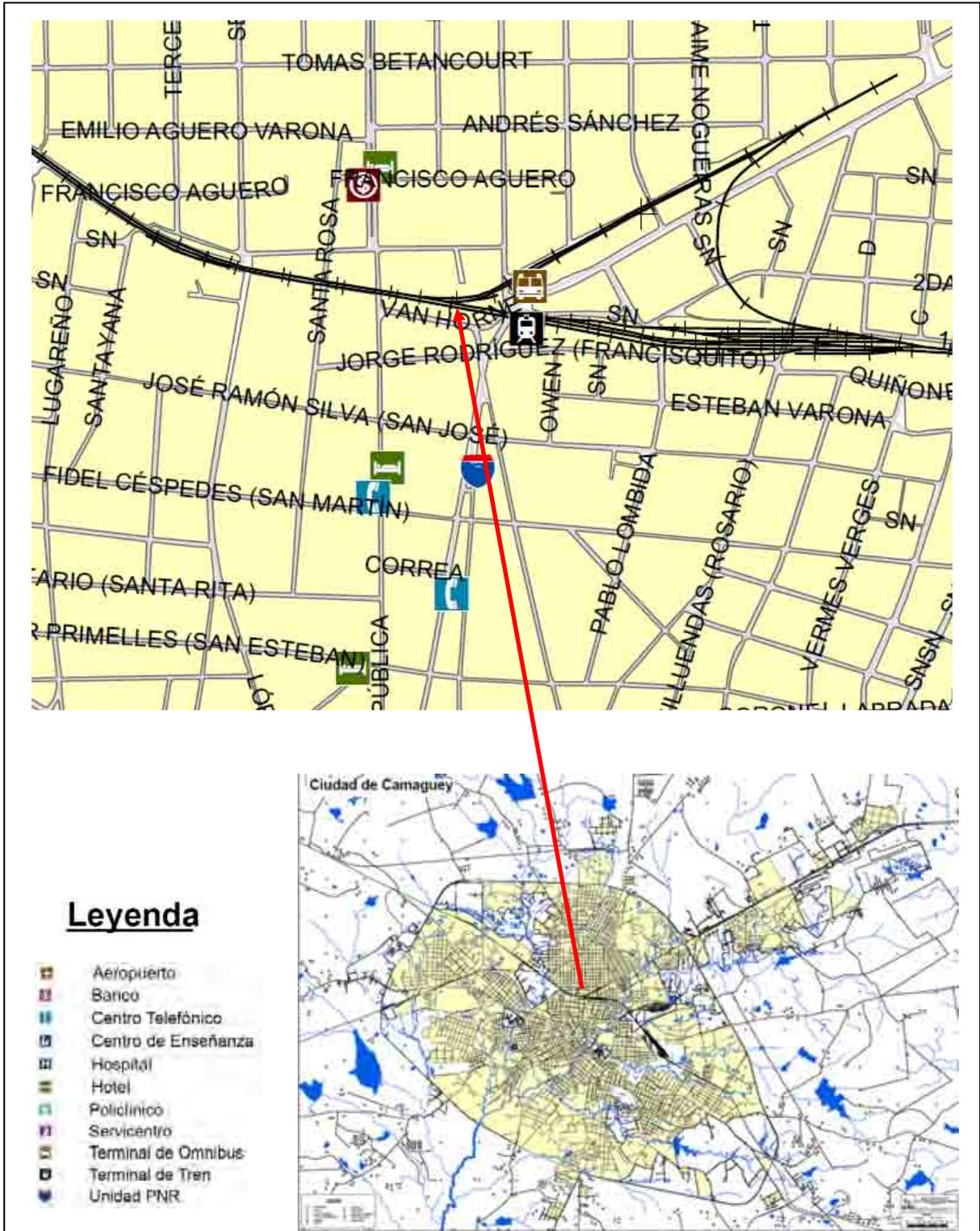
Road Map of Camaguey Province



Population Density Map of Camaguey Province



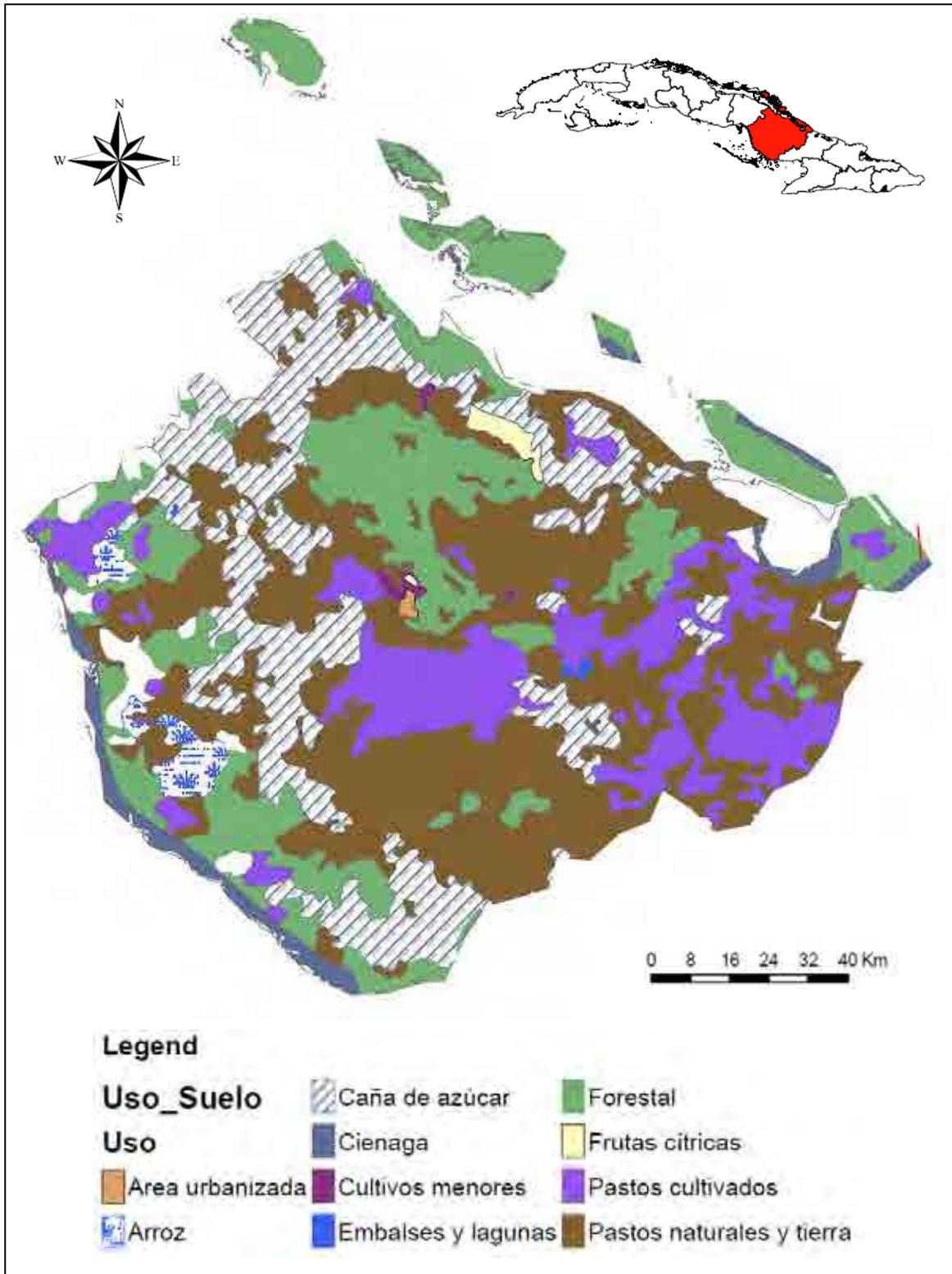
Camaguey City Map



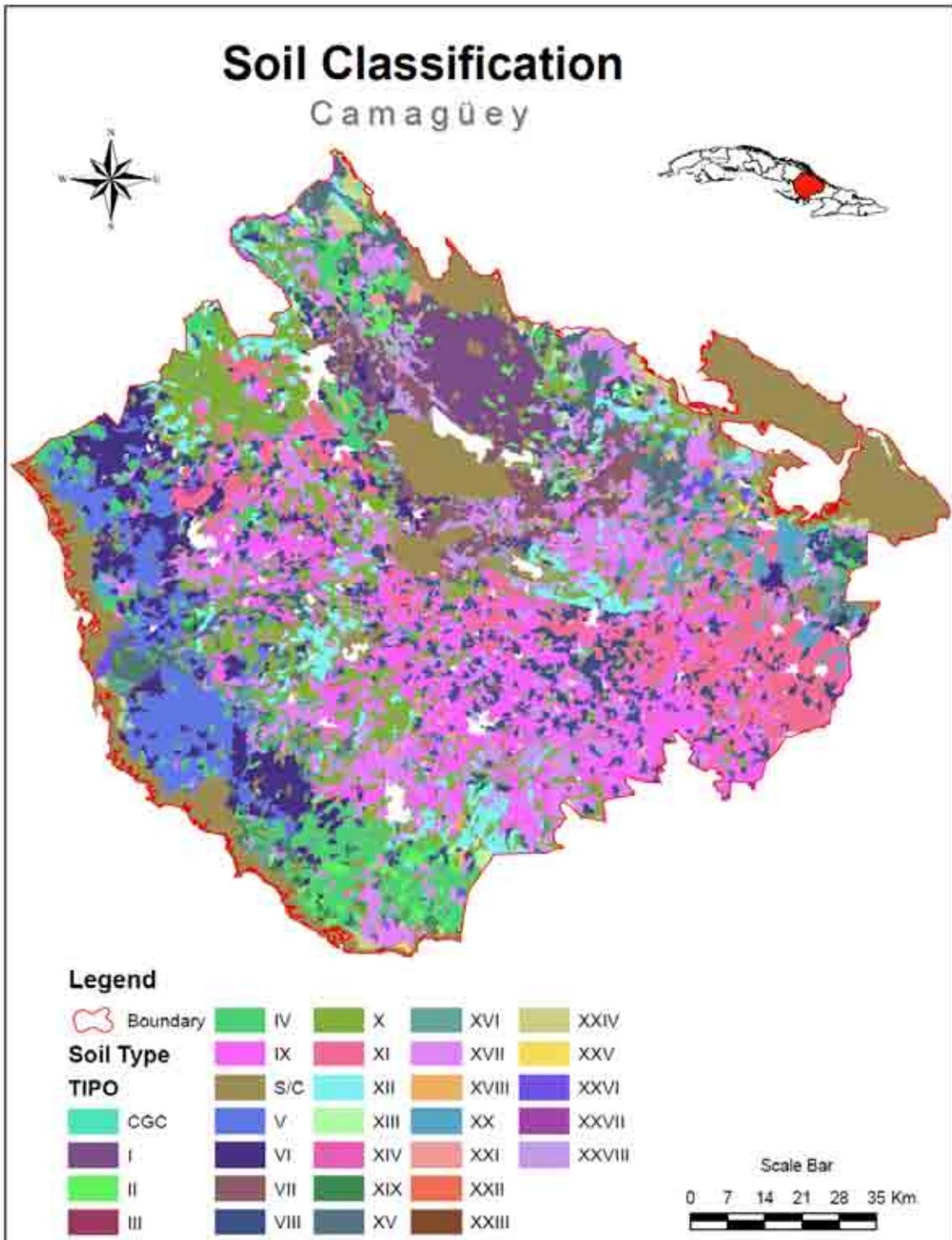
Electric Power Line Map of Camaguey Province



Land Use Map of Camaguey Province



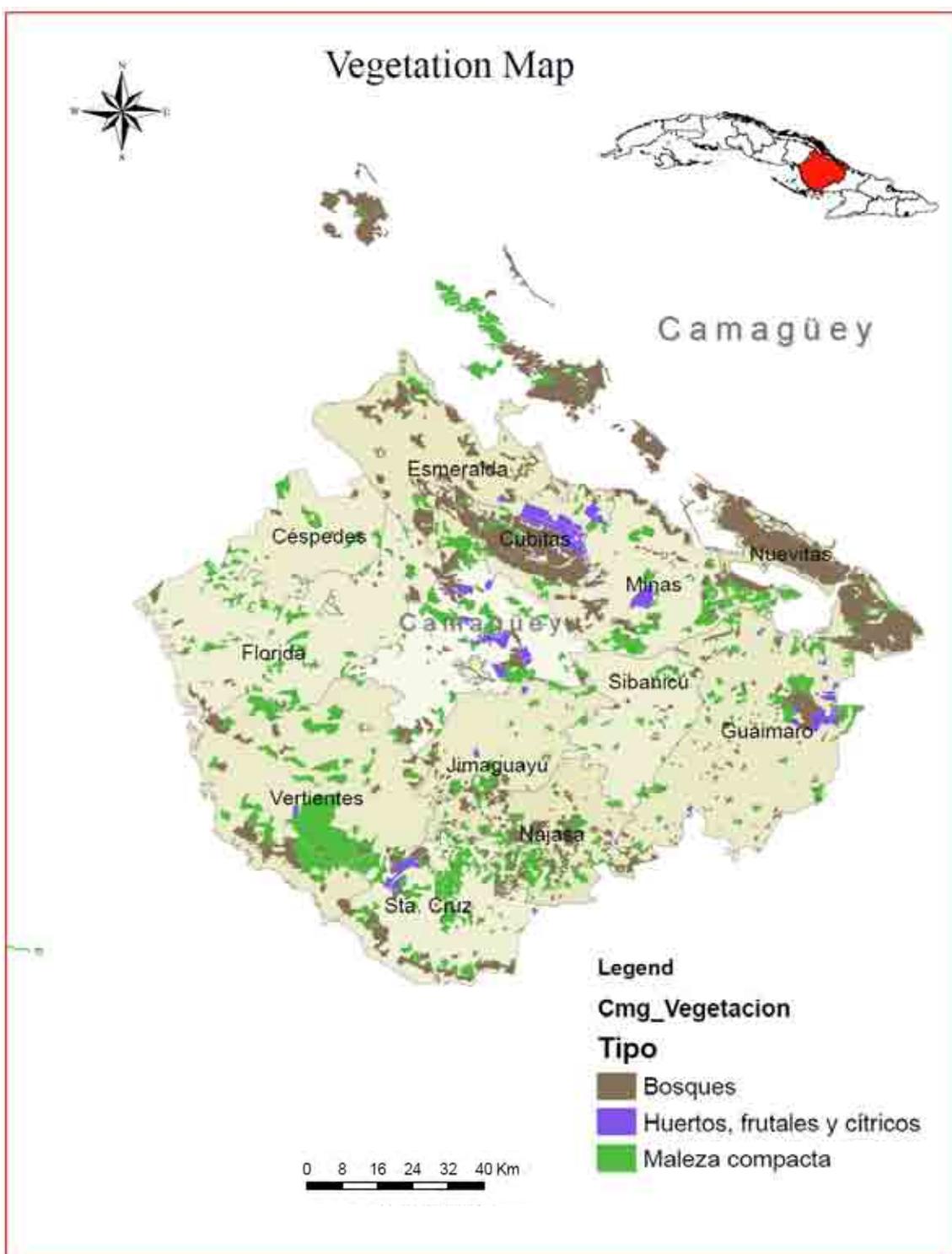
Soil Classification Maps of Camaguey Province



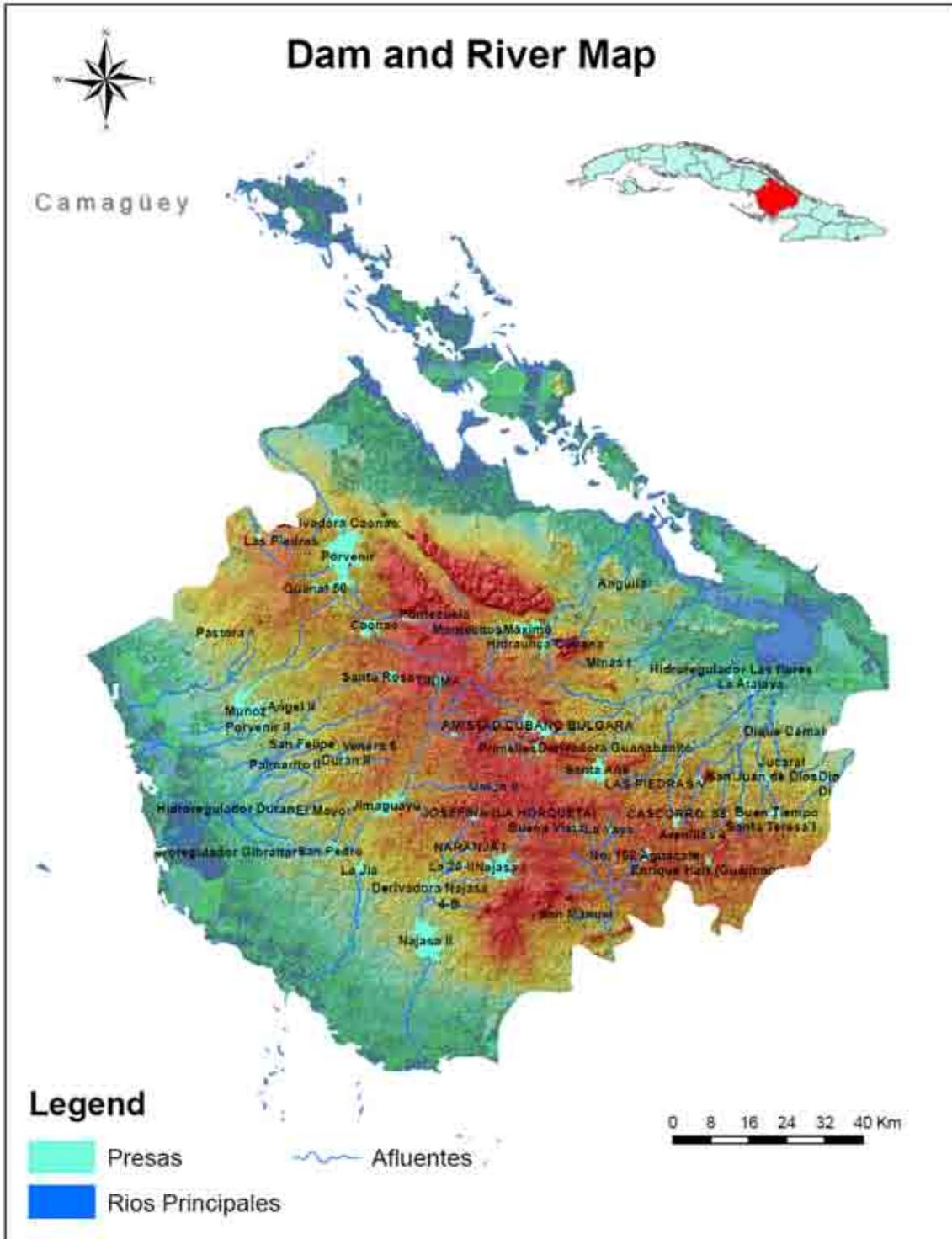
Vegetations Along the Sea Shore of Camaguey Province



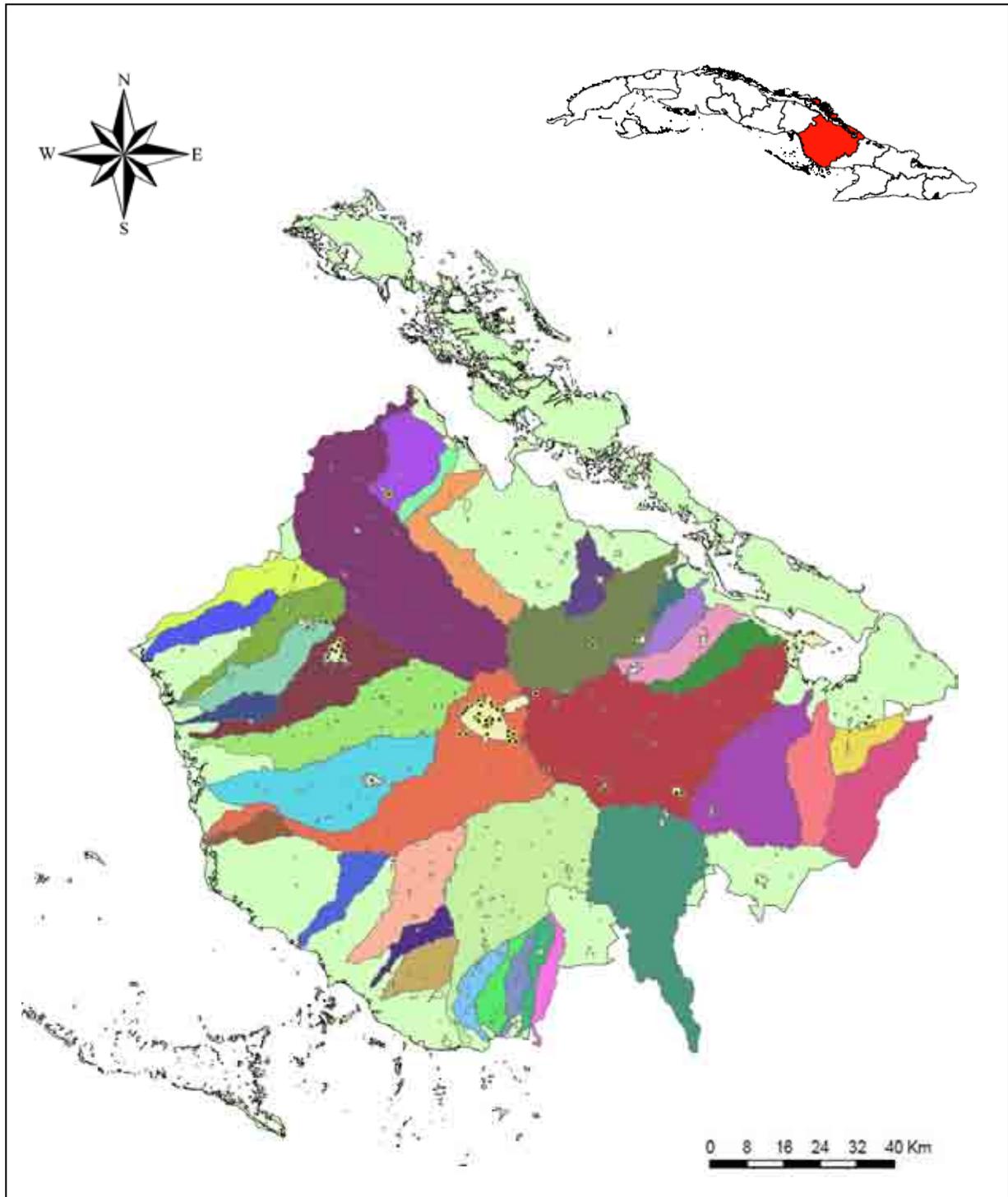
Vegetation Classification Map of Camaguey Province



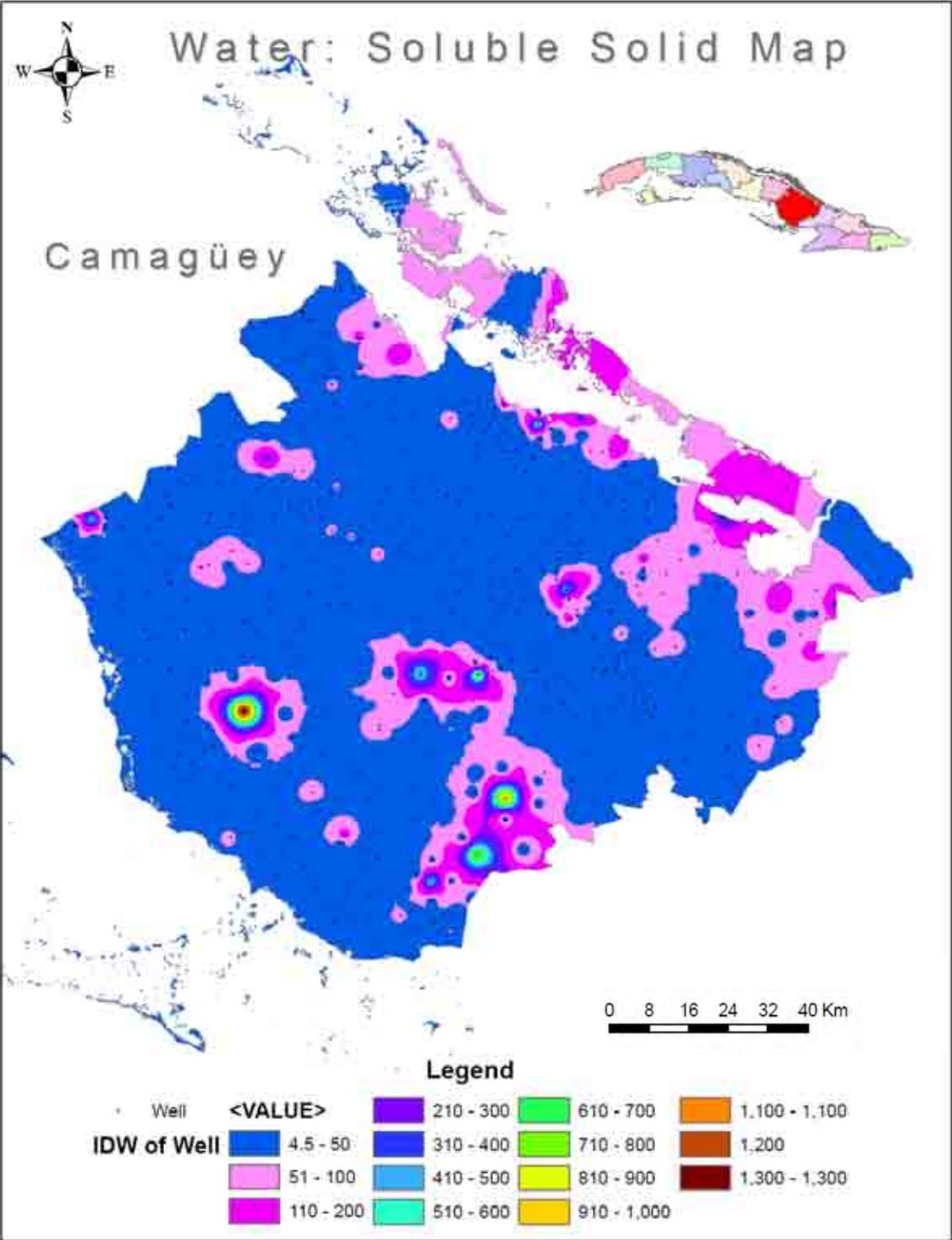
Dams and Rivers in Camaguey Province



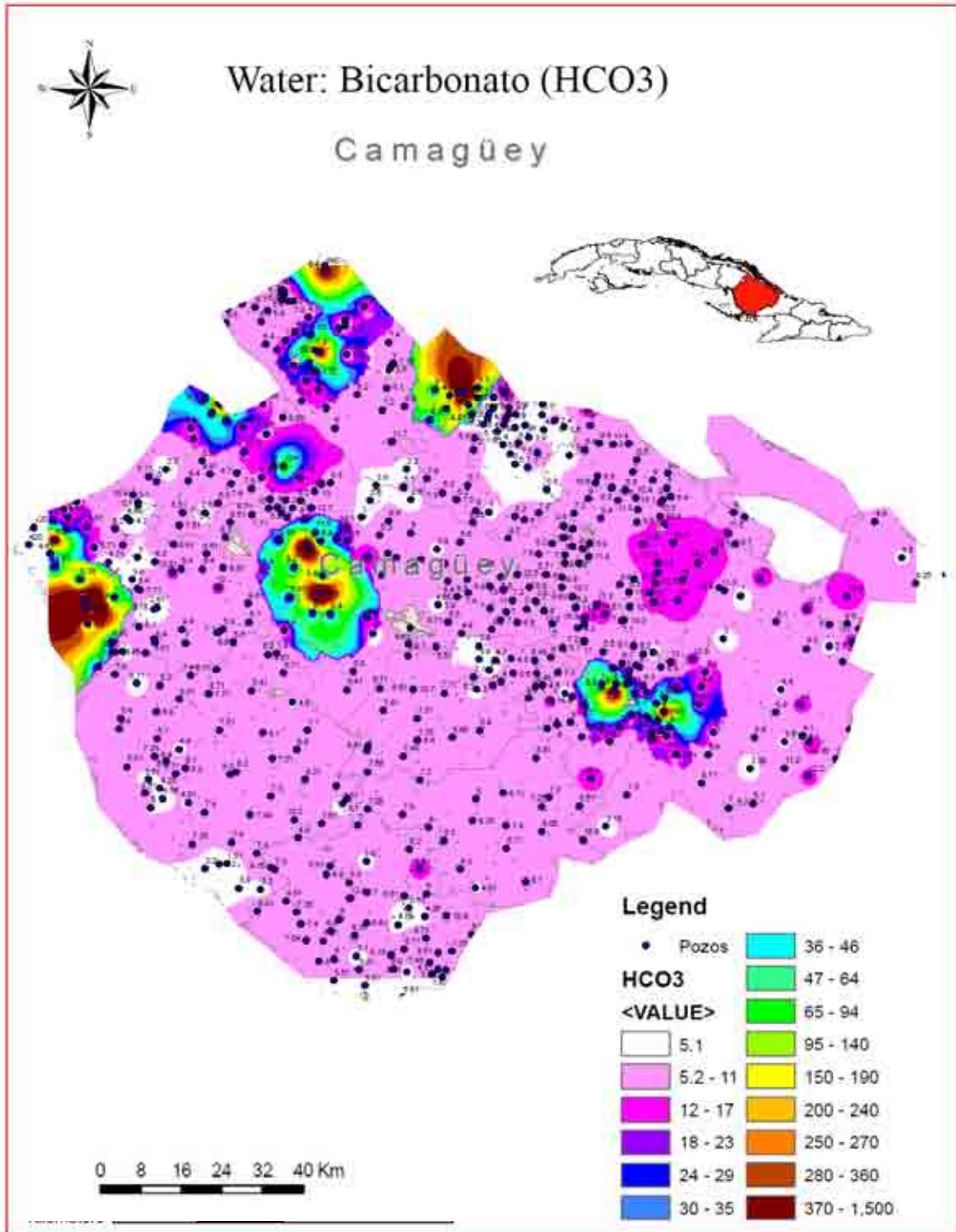
River Basins and Main Pollution Source Distribution Map of Camaguey Province



Groundwater Quality (TDS) Distribution Map of Camaguey Province



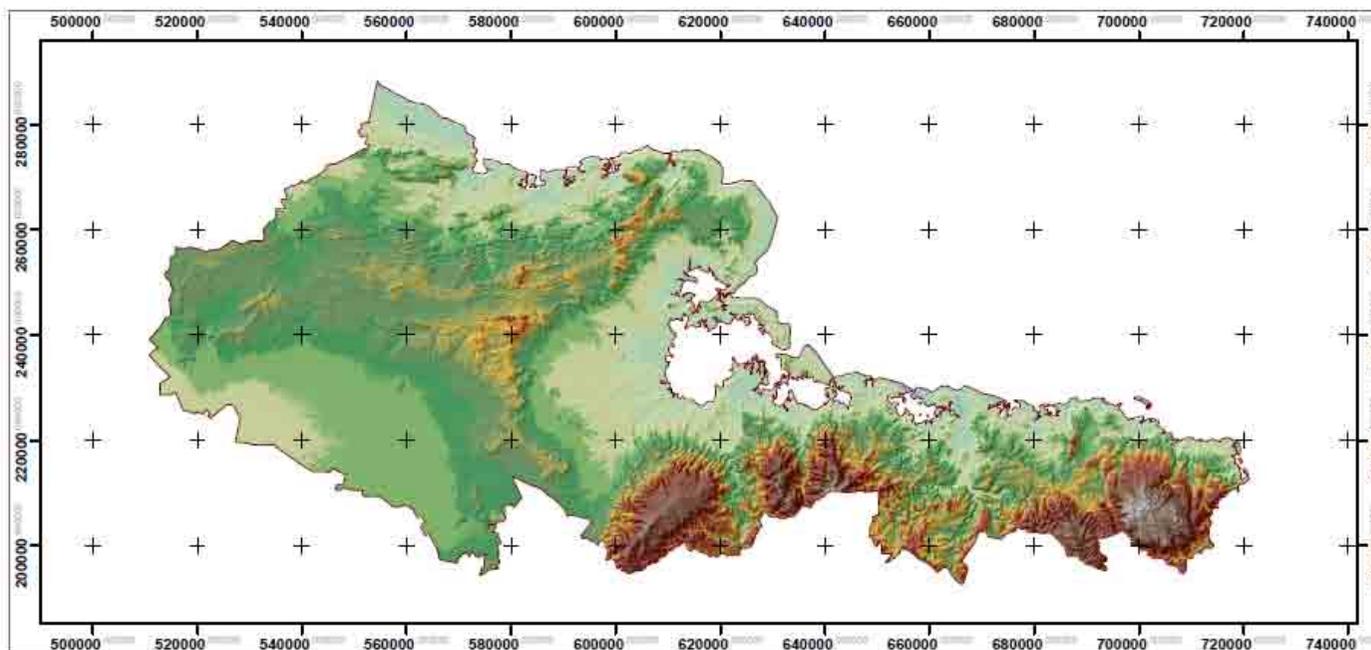
Groundwater Quality (HCO_3) Distribution Map of Camagüey Province



Provincia de Holguín

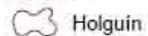
Topography Map of Province Holguín

Mapa Topográfico Provincia de Holguín



Leyenda

Fronteras



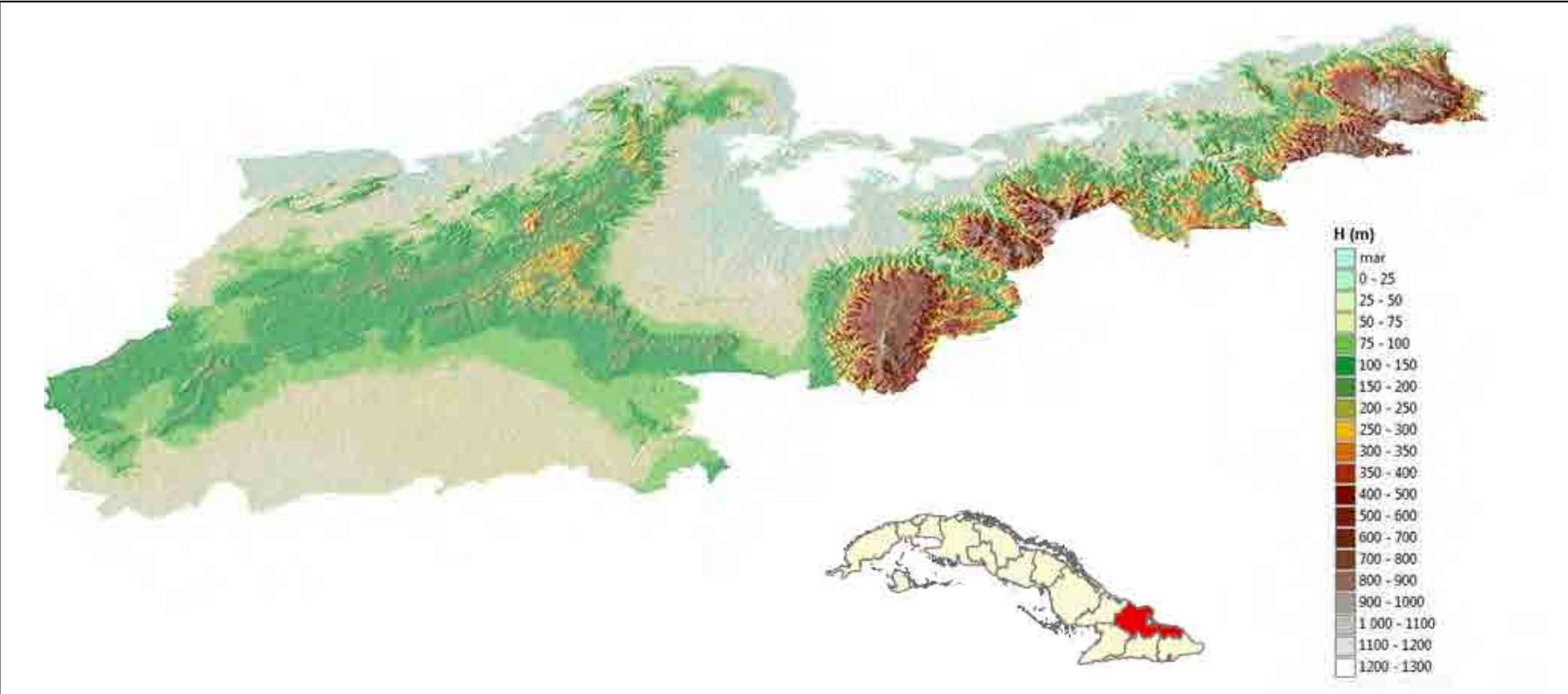
Relieve (m)		
0 - 10	150 - 200	600 - 700
10 - 25	200 - 250	700 - 800
25 - 50	250 - 300	800 - 900
50 - 75	300 - 400	900 - 1,000
75 - 100	400 - 500	1,000 - 1,100
100 - 150	500 - 600	1,100 - 1,200

Proyecto de Colaboración Técnica
Mejoramiento de la capacidad de desarrollo y manejo del
agua subterránea para la adaptación al cambio climático
en la República de Cuba

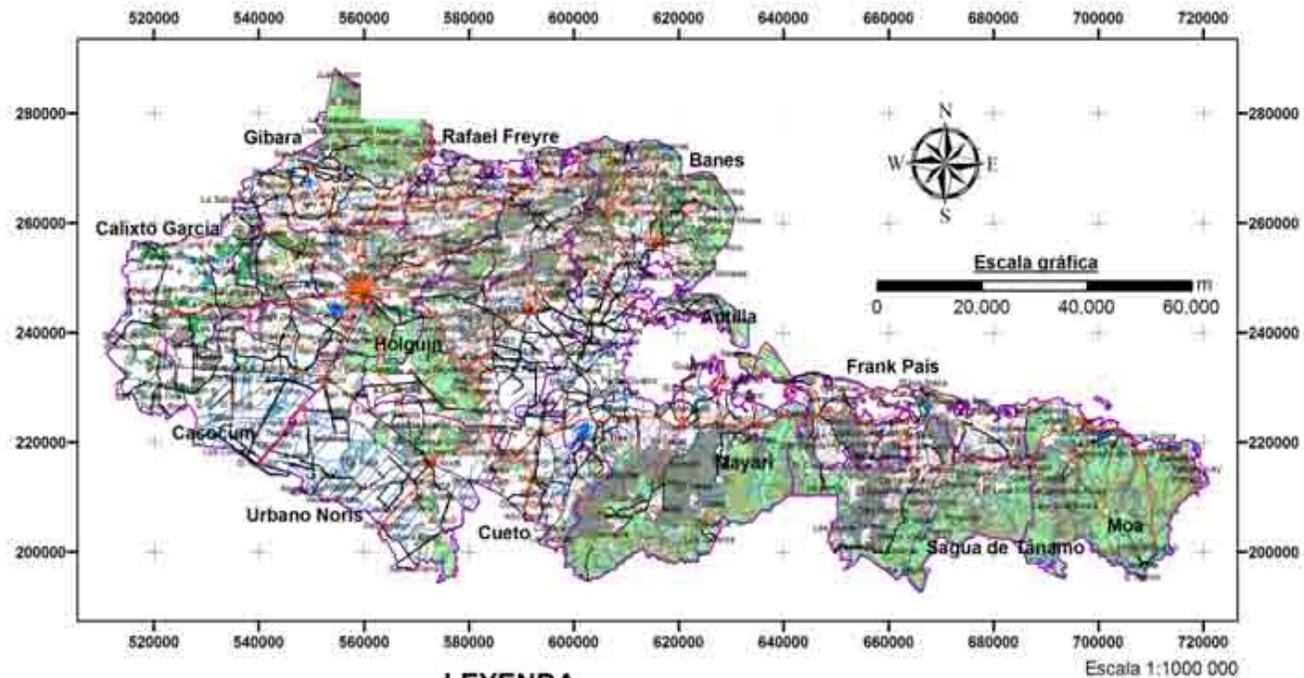
Creado por: Grupo de Investigaciones RAUDAL

Escala
1 : 1 000 000 1 cm = 10 km

3 Dimensional Map of Province Holguin



Geographic Features of Province Holguin

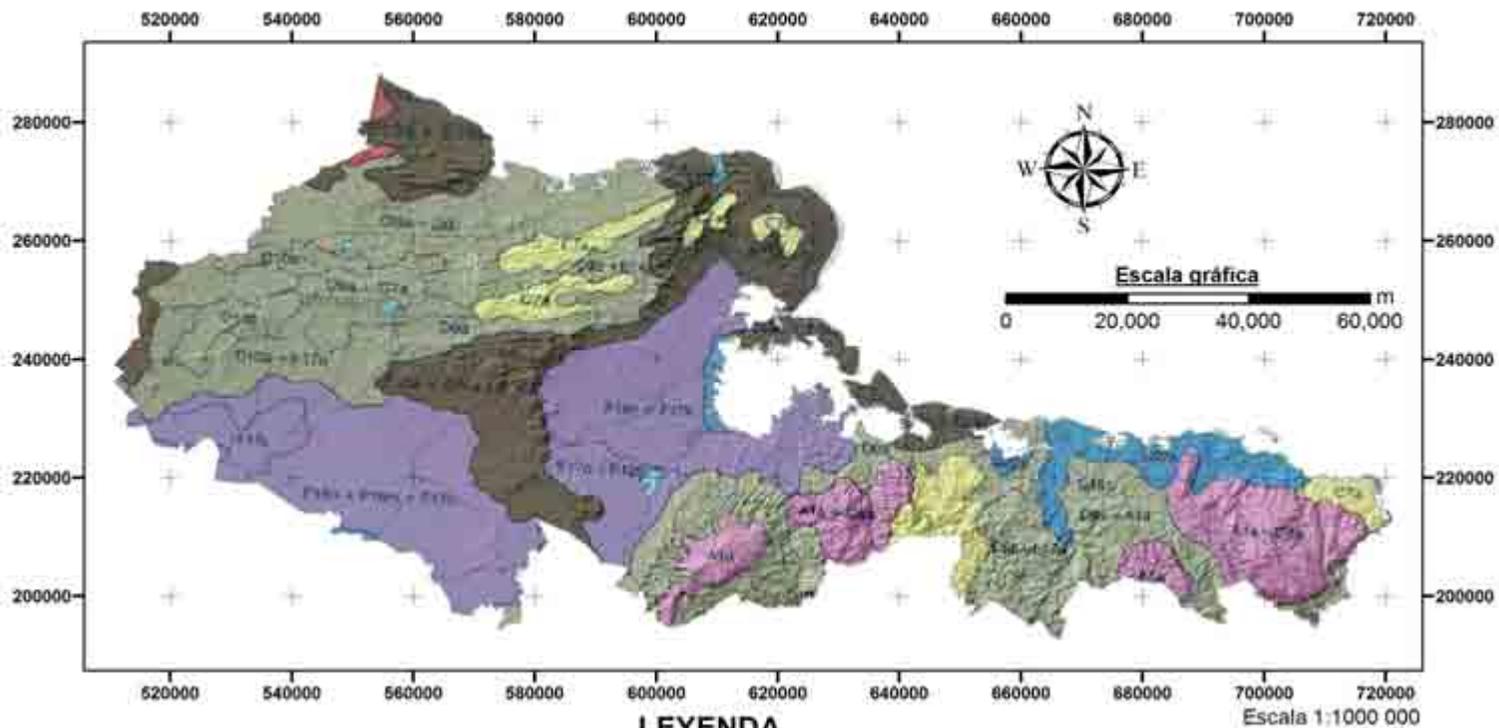


LEYENDA

Viales	Otros	Tipo de vegetación
— Caminos	— Límite municipal	— Bosque de todo tipo
— Carretera central	— Curvas de nivel	— Huertos, frutales y cítricos
— Carreteras principales	— Holguin_pueblos	— Maleza compacta
— Carreteras secundarias		
— Circumbalante	Hidrografía	
— Ferrocarril	— Presas	
— Puentes	— Ríos	

Soil Classification Map of Province Holguin

MAPA DE TIPOS DE SUELOS. PROVINCIA HOGUIN

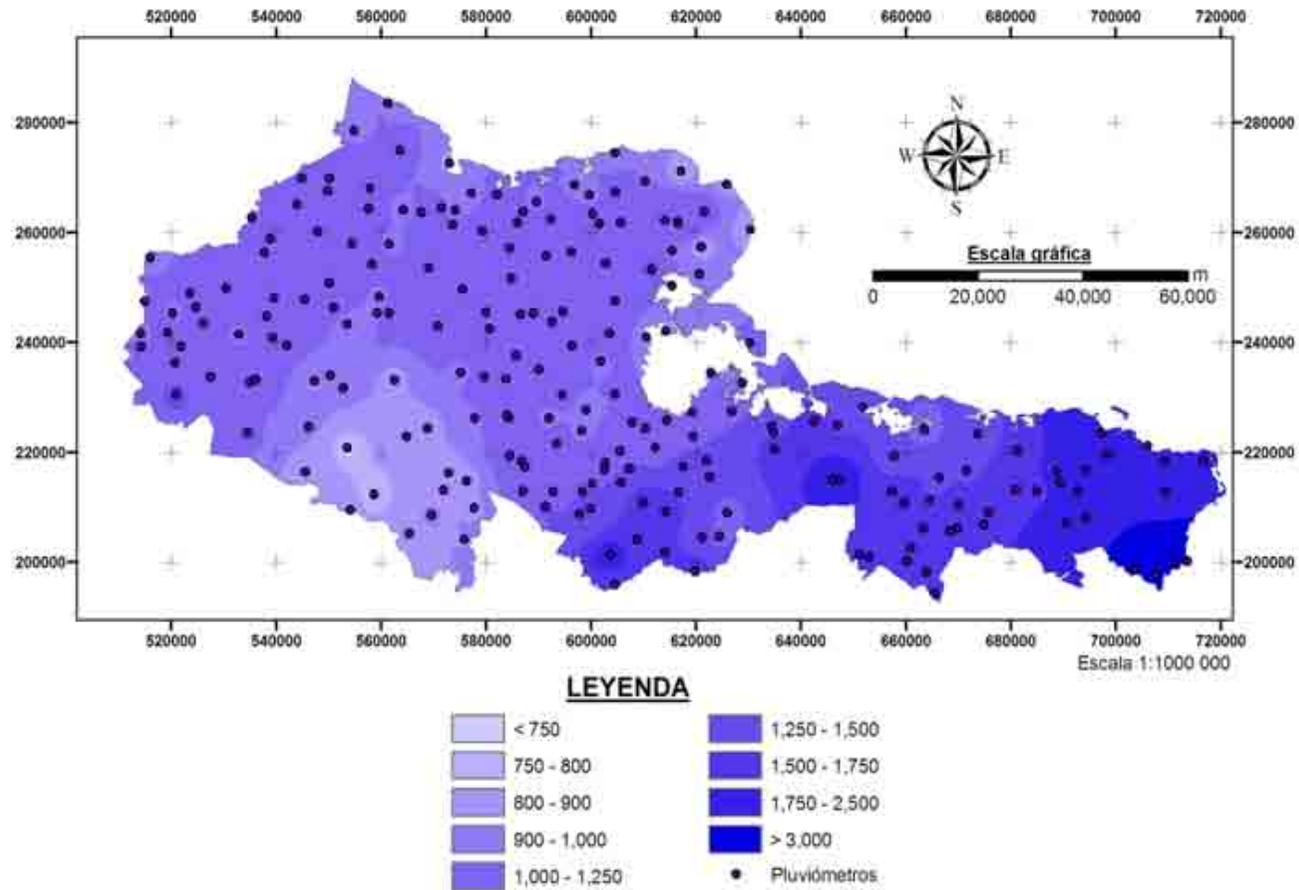


LEYENDA

A	Feríticos	D	Pardos	G	Hilomórficos	J	Poco Evolucionados
B	Ferrálticos	F	Húmicos Calcimórficos	H	Halimórficos	Kd	Cerco Desnudo
C	Ferisálticos	E	Vertisuelos	V	Aluviales		Zonas Urbanas

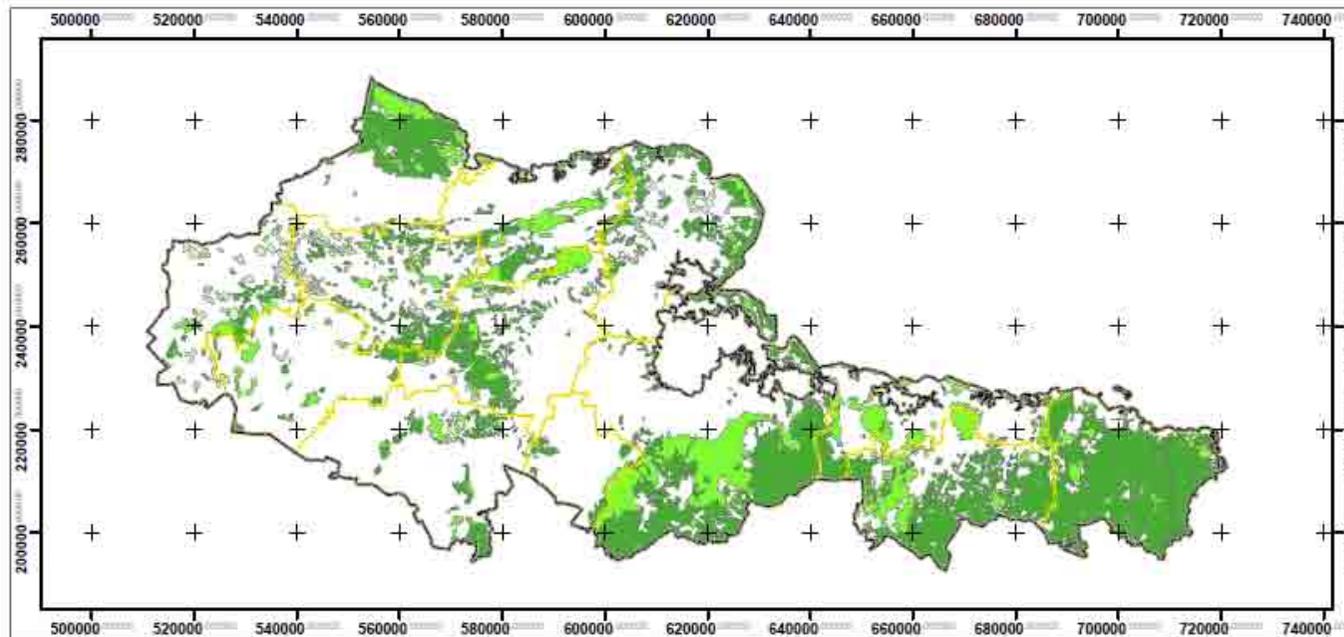
Average Precipitation Distribution in Province Holguín (2000-2011)

PRECIPITACIÓN MEDIA HIPERANUAL. PERIODO 2000-2011.
PROVINCIA HOLGUÍN



Vegetation Distribution Map in Province Holguín

Mapa de Vegetación Provincia de Holguín



Legenda

Fronteras

- Holguín
- Municipios

Vegetación

- Bosque de todo tipo
- Huertos, frutales y cítricos
- Maleza compacta

Proyecto de Colaboración Técnica
Mejoramiento de la capacidad de desarrollo y manejo del
agua subterránea para la adaptación al cambio climático
en la República de Cuba

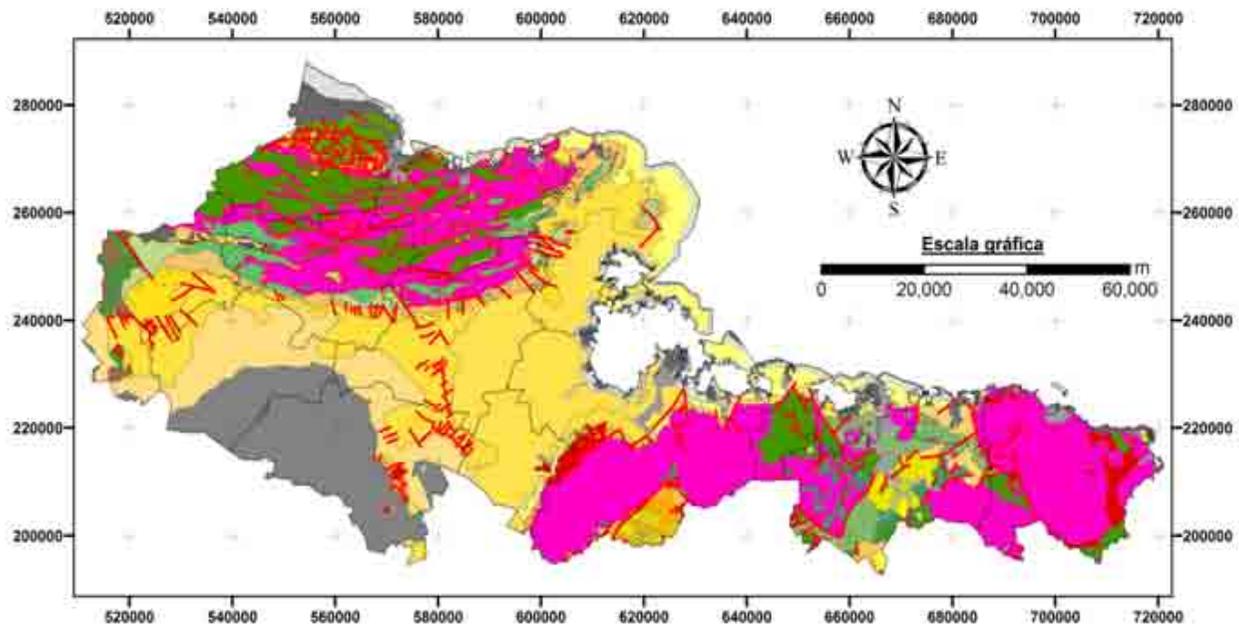
Creado por: Grupo de Investigaciones RAJDAL

Escala
1: 1 000 000 1 cm = 10 km

10 0 10 20 30 40 Km

Geological Map of Province Holguín

MAPA GEOLÓGICO DE LA PROVINCIA HOLGUÍN



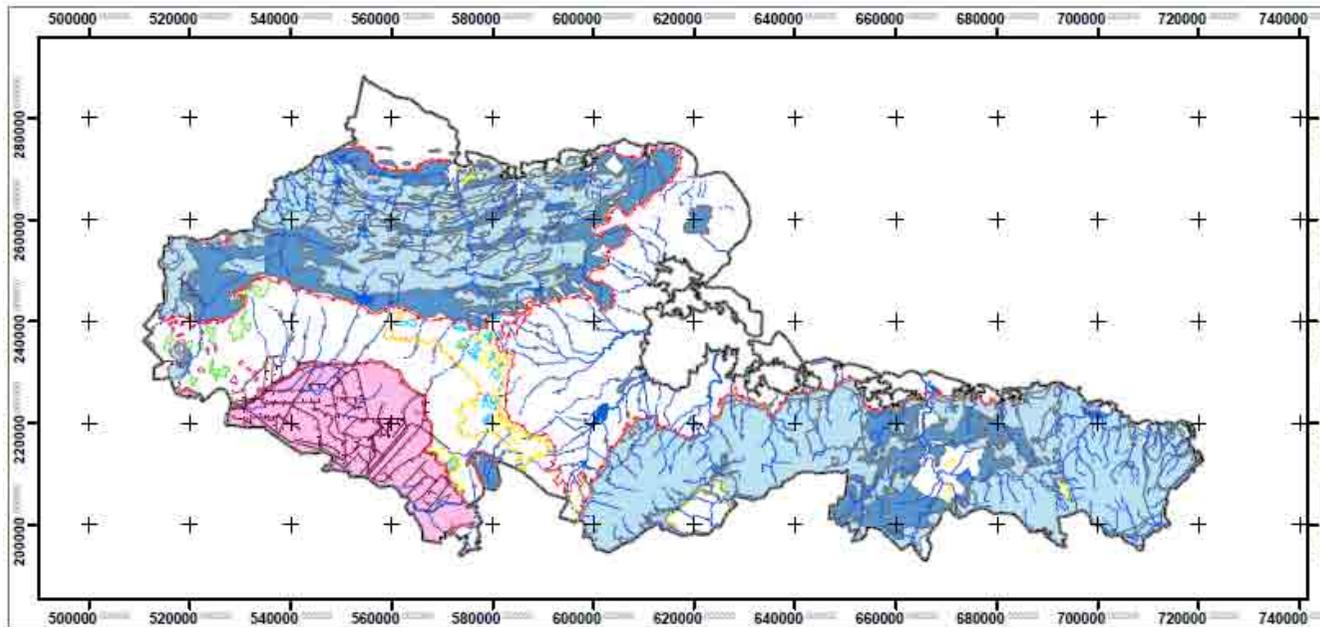
LEYENDA

Escala 1:1000 000

Depósitos péluvicos (ca. Q)	Fm. Paso Real (pr. e8-n8)	Fm. Cerro Redondo (chr. E2)	Fm. Yaguajay (ya. k5)	Fm. Santo Domingo (sd. b5-k2)	Riocitas (r1)
Depósitos aluviales (al. Q)	Fm. Brito (br. e8-n1)	Fm. Puerto Borato (pl. E2)	Fm. Linderó (ll. k5-k6)	Diabasas (D)	Dolitas (D)
Depósitos arenoso costeros (ac. Q)	Fm. Camazán (ca. e8-n1)	Fm. Vigía (vg. e3-e5)	Fm. La Jirama (j. k5-k6)	Andesitas (A)	Ultramafitas serpentizadas (U)
Fm. Caño (ca. Q)	Mbro. Piedras de ca (pc. e8-n1)	Fm. Sabana (sb. e1-e6)	Fm. La Piedad (pc. k5-k6)	Andesita basalto (a1)	Fallas_Hg
Fm. Jaimuntas (ja. Q)	Mbro. Cíndro de m2 (c. e8-n1)	Fm. Embicadero (em. e3-e6)	Fm. Tinaja (tn. k5-k6)	Riocitas (r1)	
Fm. Dali (dl. n9-Q)	Fm. Maquey (ma. e8-n1)	Fm. Gran Tierra (gt. e1)	Fm. Cibera (ci. b5-k1)	Sesatos (S)	
Fm. Júcaro (jc. n6-n7)	Fm. Yareas (ya. e8-n1)	Fm. Hatosa (ht. e2)	Fm. Guáimero (gm. b6-k3)	Granito y cuarzo (G)	
Fm. Río Jagüeyes (rj. n2-n6)	Fm. Mucana (mu. e8-n1)	Fm. Mizara (mz. e8-n1)	Mbr. La Marena de B (lm. b6-k2)	Dolitas (D)	
Fm. Vázquez (va. n2-n4)	Geosistoma Rancho Bravo (rb. e6)	Mbro. Micare de Jc (mc. k8-e1)	Fm. Ibeña (ib. b6-k1)	Gabro-dibasas (g-d)	

Groundwater Basin Division Map in Province Holguín

Mapa Hidrogeológico Zonación de Acuíferos Provincia de Holguín



Leyenda

Fronteras	Hidrografía	Acuíferos	Acuíferos Cársico	Tipo de Ríos
Holguín	Ríos	Acuíferos en estratos con recursos de agua limitada	Límite de región cársica	Río cársico
	Arroyo	Acuíferos locales en rocas fisuradas	Límite de sistema cársico	Río transcurrente
	Canal	Acuíferos sin recursos de agua subterránea	Campo de lapiezs	
	Embalses		Dolina o uvala	
			Inselberg	

Proyecto de Colaboración Técnica
Mejoramiento de la capacidad de desarrollo y manejo del agua subterránea para la adaptación al cambio climático en la República de Cuba

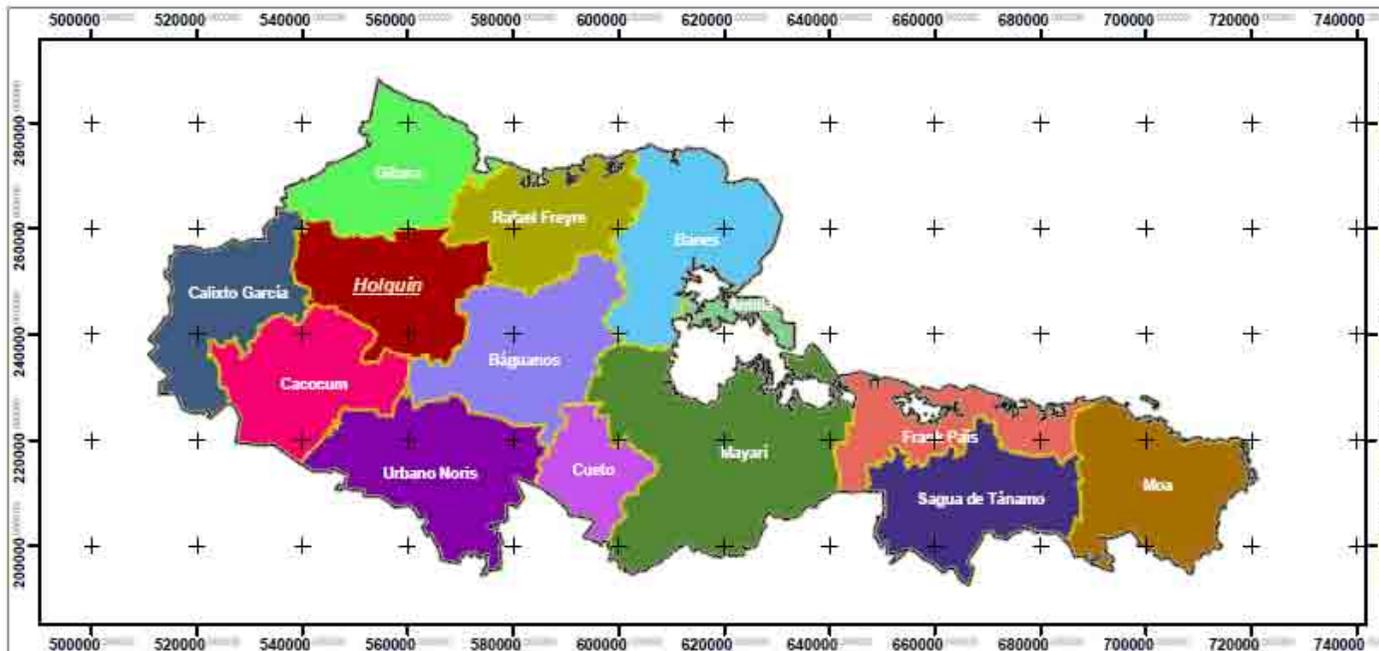
Creado por: Grupo de Investigaciones RAUDAL

Escala
1: 1 000 000 1 cm = 10 km

10 0 10 20 30 40 Km

Administrative Division of Province Holguín

Mapa de División Político - Administrativa Provincia de Holguín



Legenda

Fronteras

- Holguín
- Municipios

Superficie (Km²) / Población / Densidad (P x Km²)

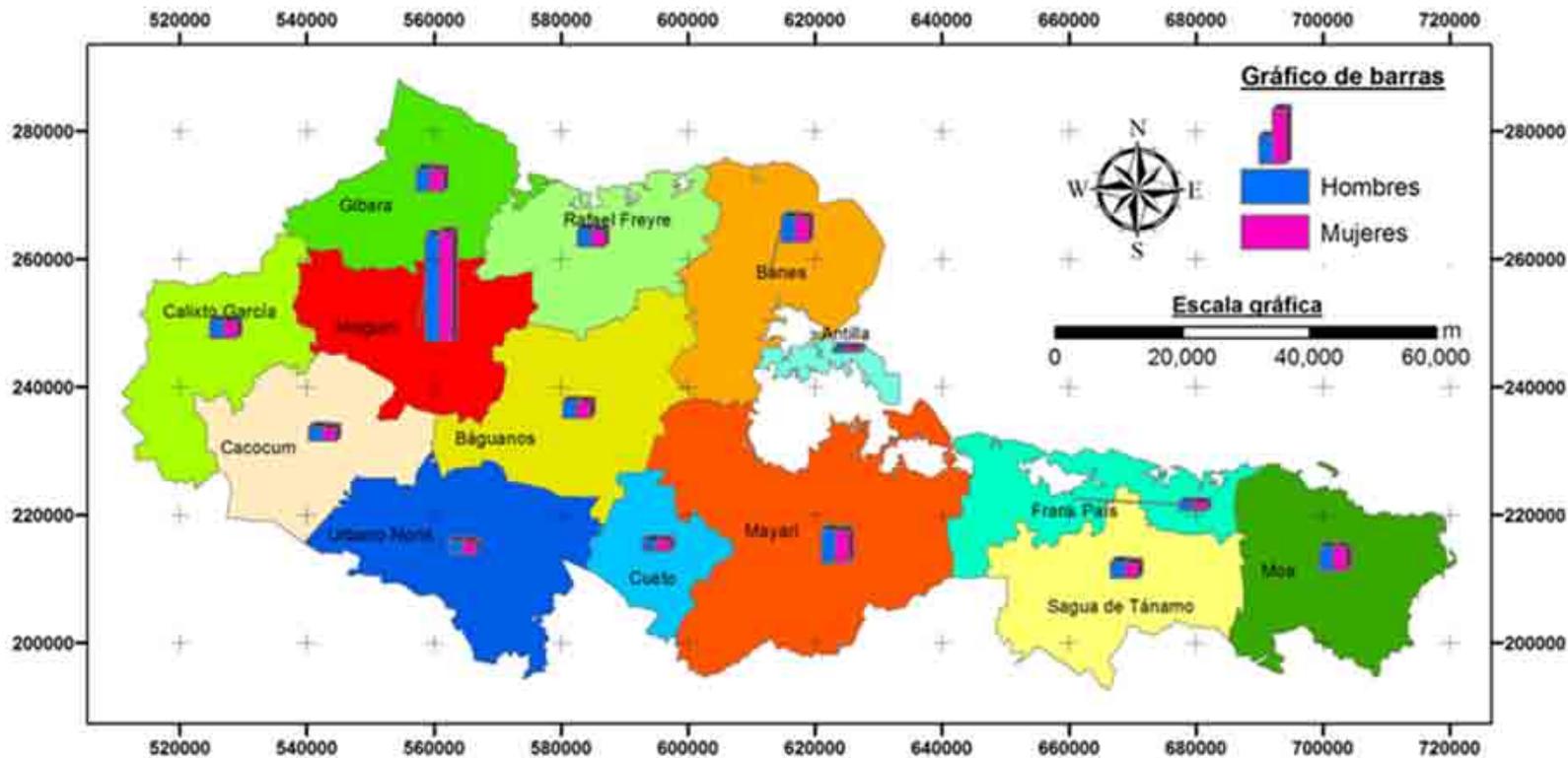
	96.23 / 12 473 / 130		620.55 / 51 077 / 82		705.42 / 59 457 / 84		837.03 / 44 792 / 54
	324.56 / 37 404 / 115		628.72 / 72 084 / 114		747.12 / 65 062 / 87		1344.71 / 107 798 / 80
	500.45 / 28 693 / 57		661.94 / 44 443 / 67		753.19 / 88 879 / 115		
	615.01 / 59 352 / 97		664.44 / 313 125 / 471		808.7 / 55 098 / 68		

Proyecto de Colaboración Técnica
Mejoramiento de la capacidad de desarrollo y manejo del agua subterránea para la adaptación al cambio climático en la República de Cuba

Creado por: Grupo de Investigaciones RAJDAL

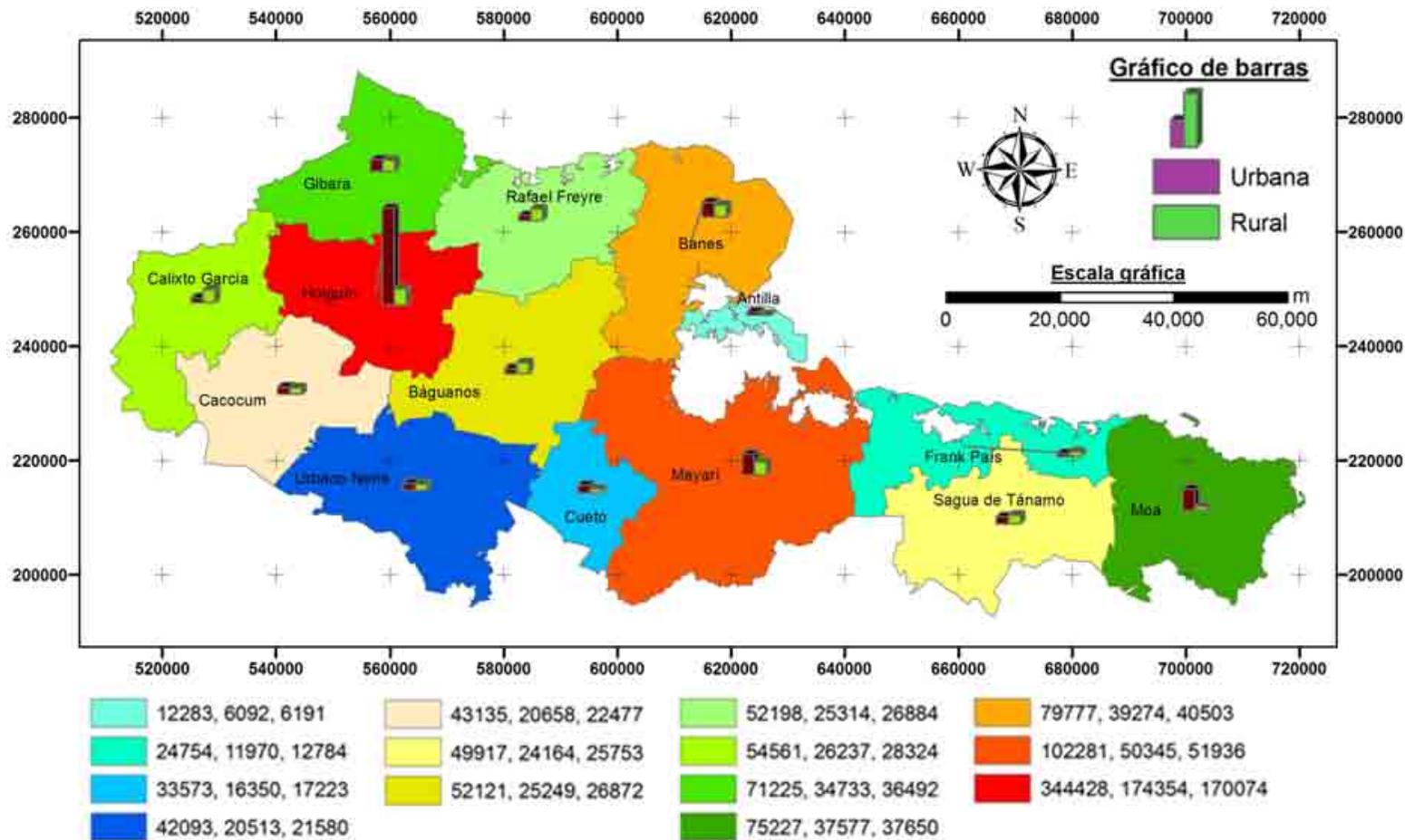
Escala
1: 1 000 000 1 cm = 10 km

Population Distribution in Province Holguín

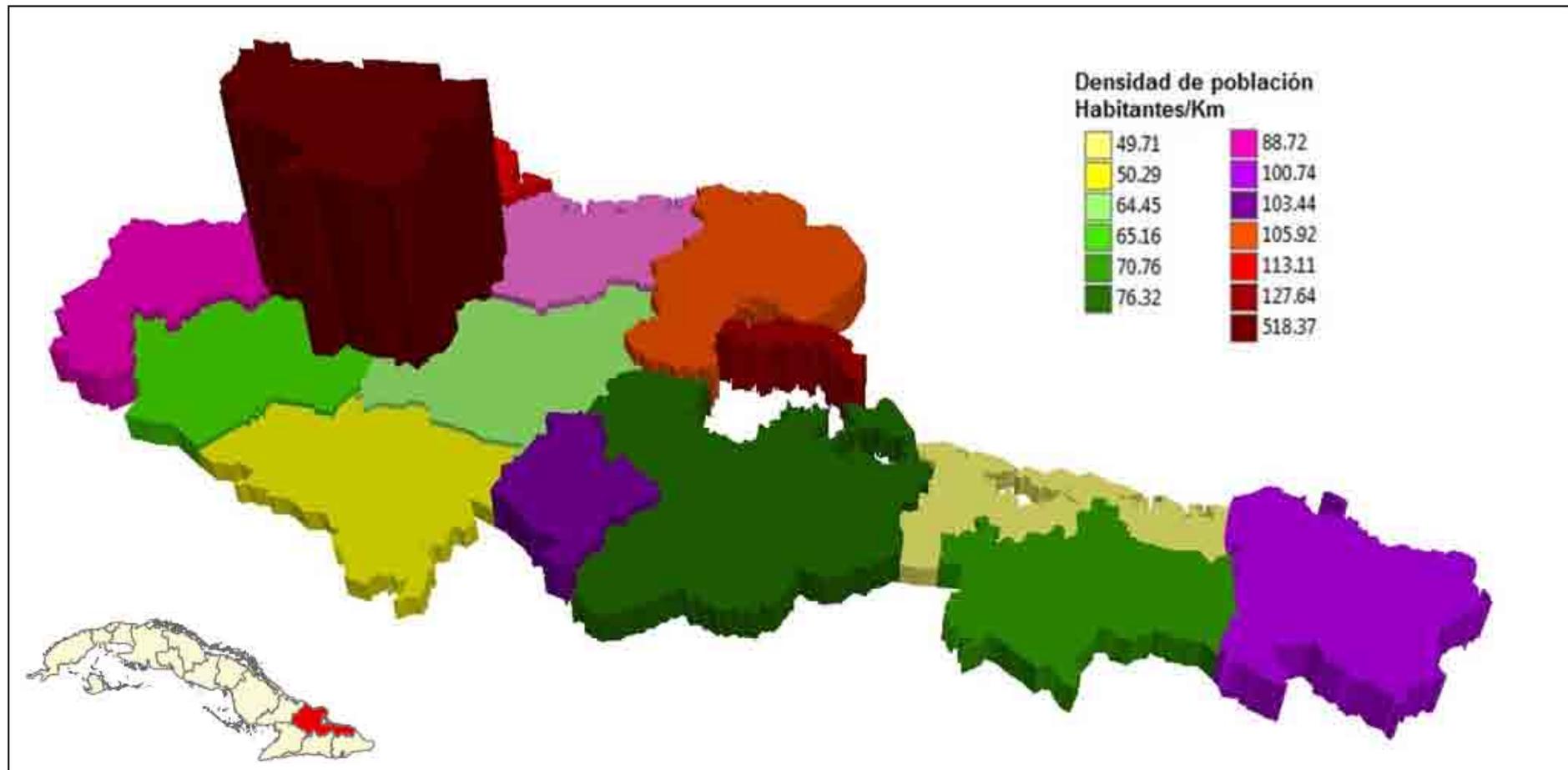


12283, 6092, 6191	43135, 20658, 22477	52198, 25314, 26884	79777, 39274, 40503
24754, 11970, 12784	49917, 24164, 25753	54561, 26237, 28324	102281, 50345, 51936
33573, 16350, 17223	52121, 25249, 26872	71225, 34733, 36492	344428, 174354, 170074
42093, 20513, 21580		75227, 37577, 37650	

Population Distribution in Province Holguin

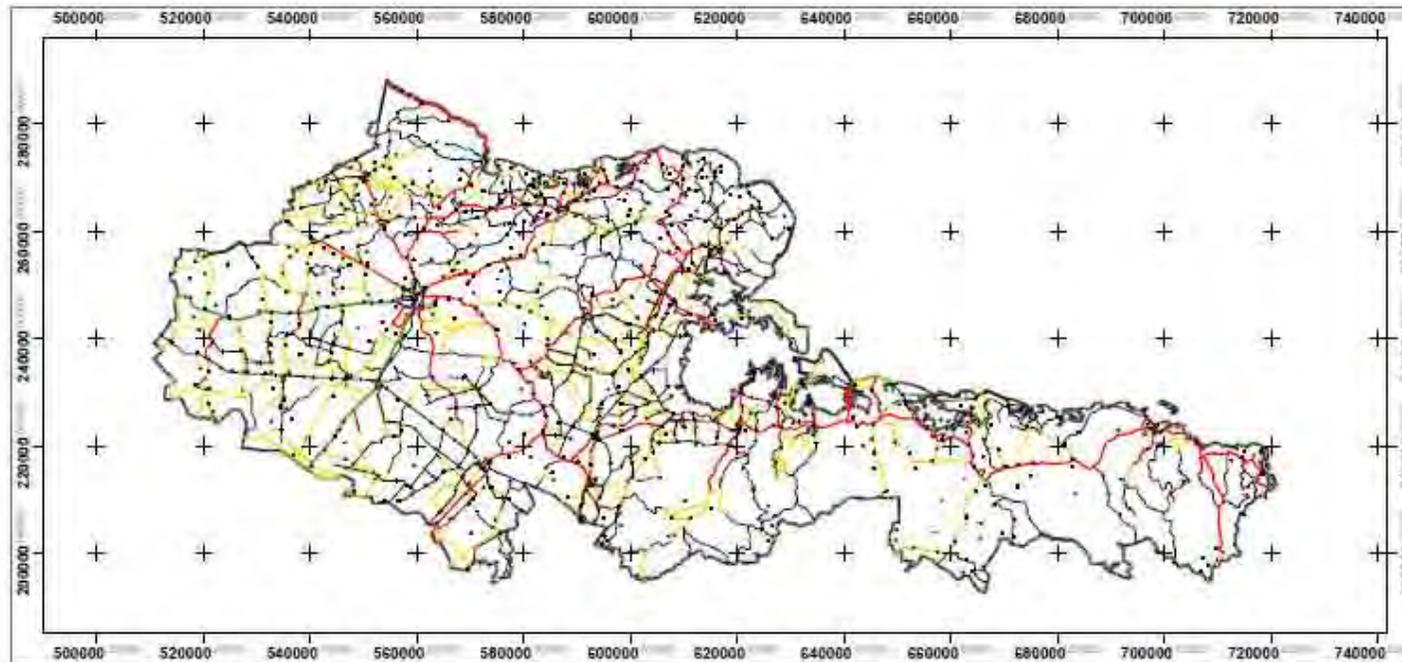


3 Dimensional Population Distribution Map of Province Holguin



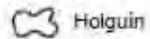
Roads Map of Province Holguín

Mapa de Carreteras Provincia de Holguín



Leyenda

Fronteras



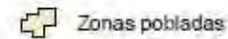
Holguín

Viales

- Carretera Central
- Circunvalante
- Carreteras principales

- Carreteras secundarias
- Caminos
- Ferrocarril

Población



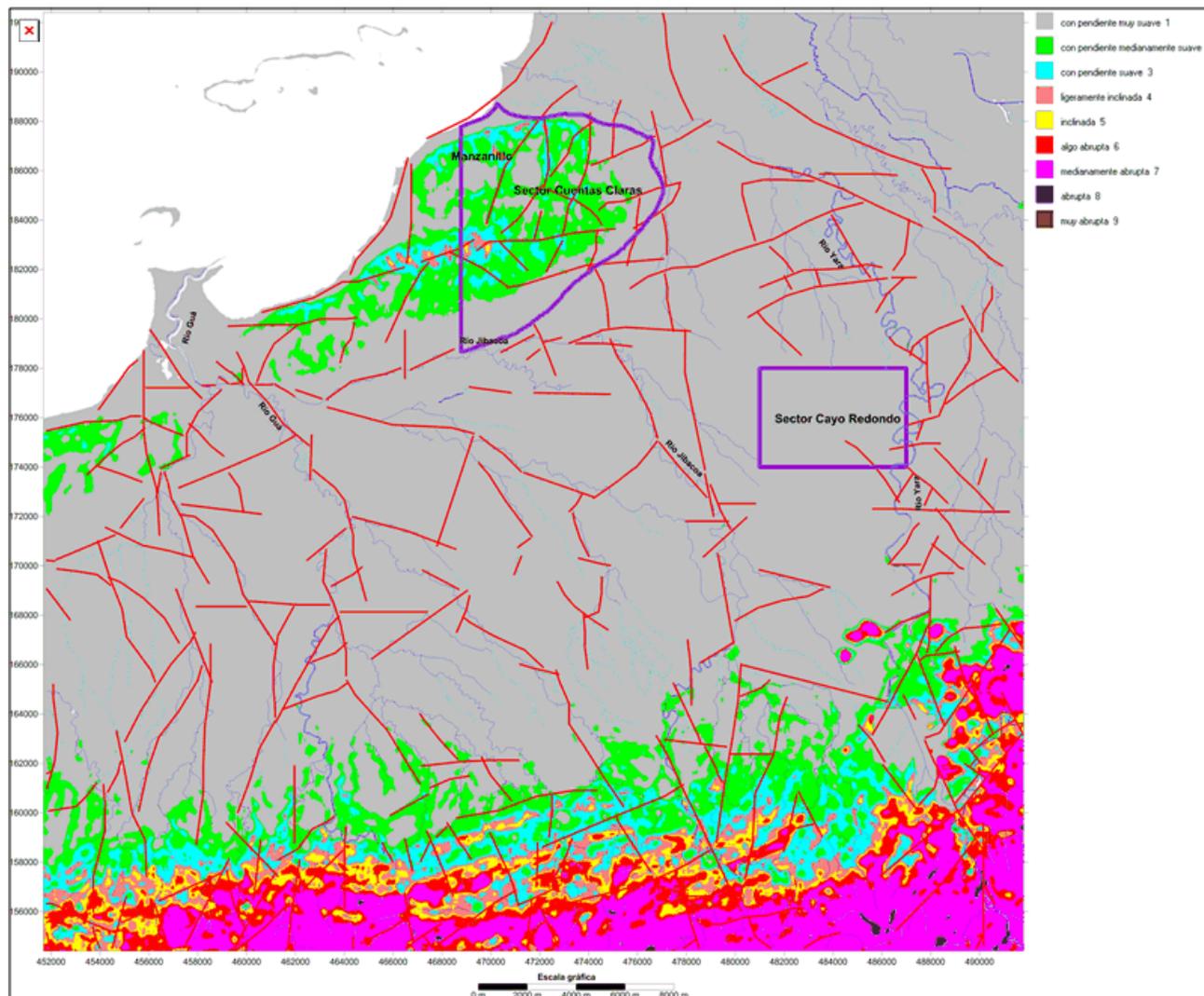
Zonas pobladas

Proyecto de Cooperación Técnica
Mejoramiento de la capacidad de desarrollo y manejo del
agua subterránea para la adaptación al cambio climático
en la República de Cuba

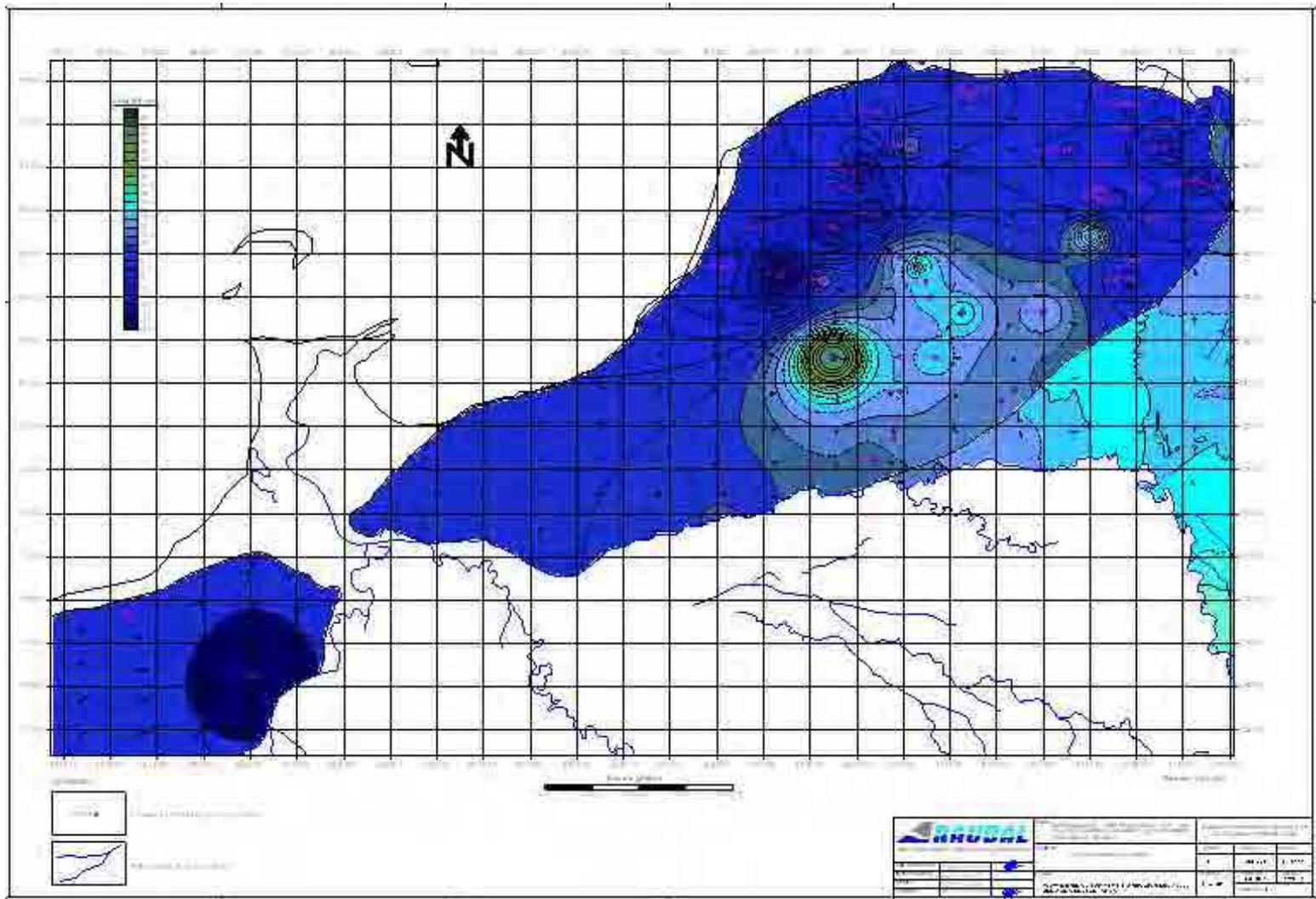
Diseño por: Grupo de Investigaciones RAUDAL

Escala
1: 1 000 000 1 cm = 10 km

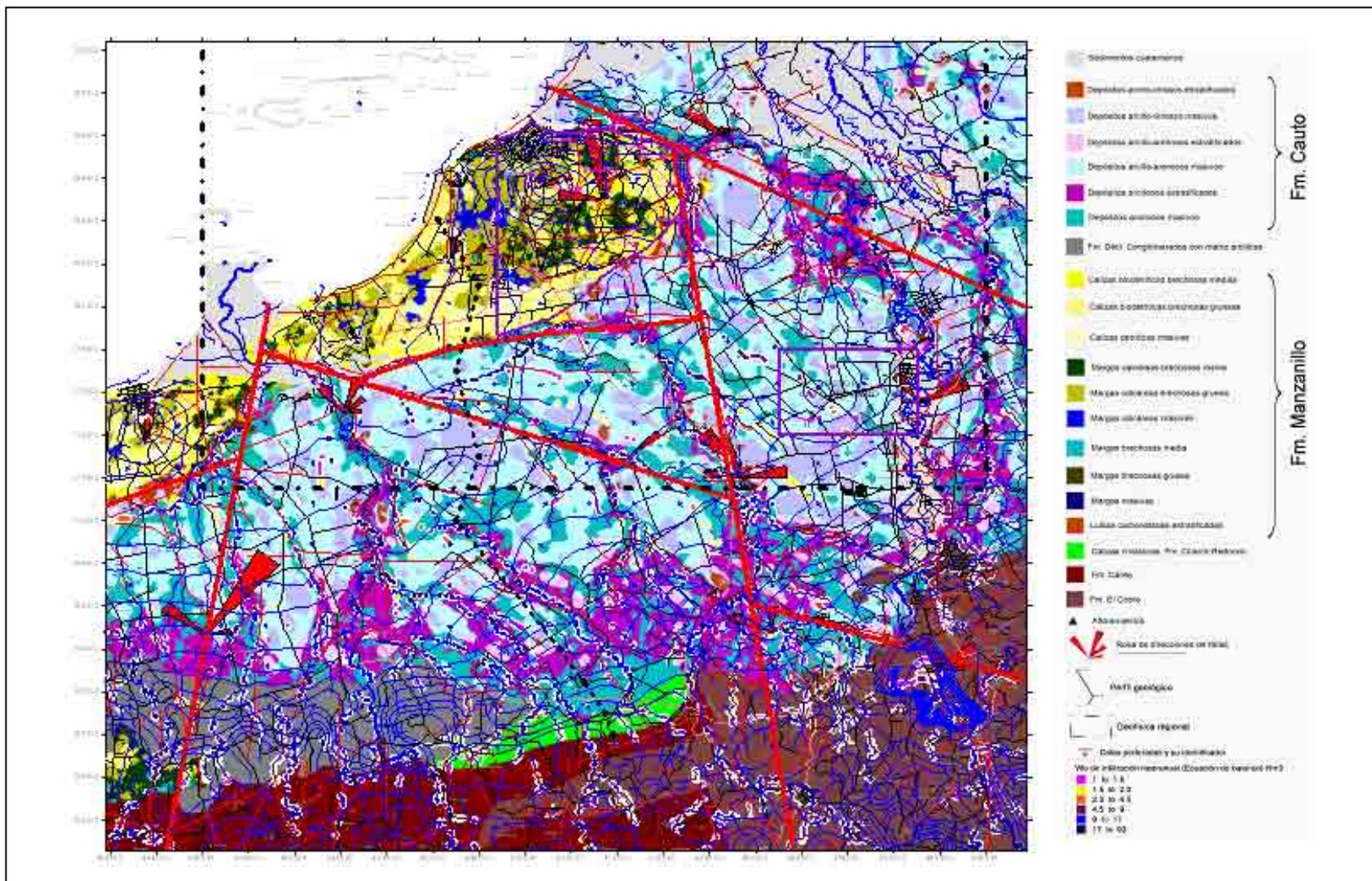
Geology Structure (Faults Distribution) Map of Survey Area Estudio, Holguin



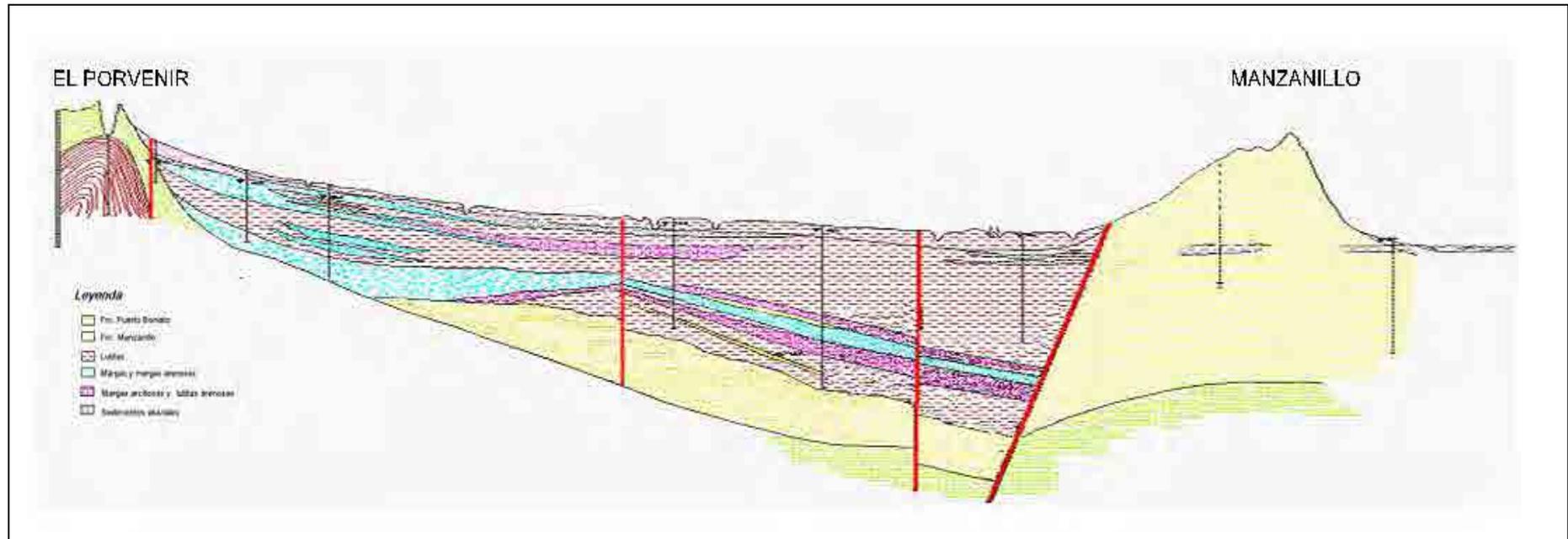
Groundwater Level and Flow Directions (1) of Manzanillo City



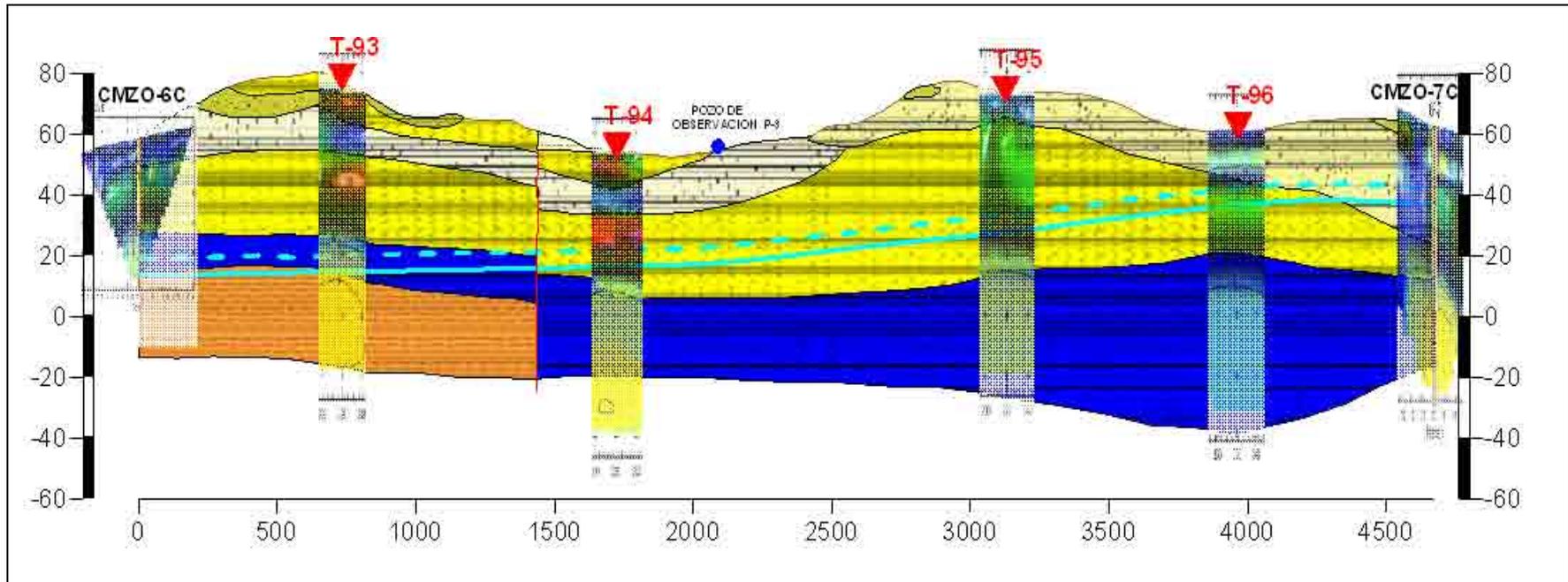
Geological Structure Map_2 of Manzanillo City



Geological Profile of Manzanillo City



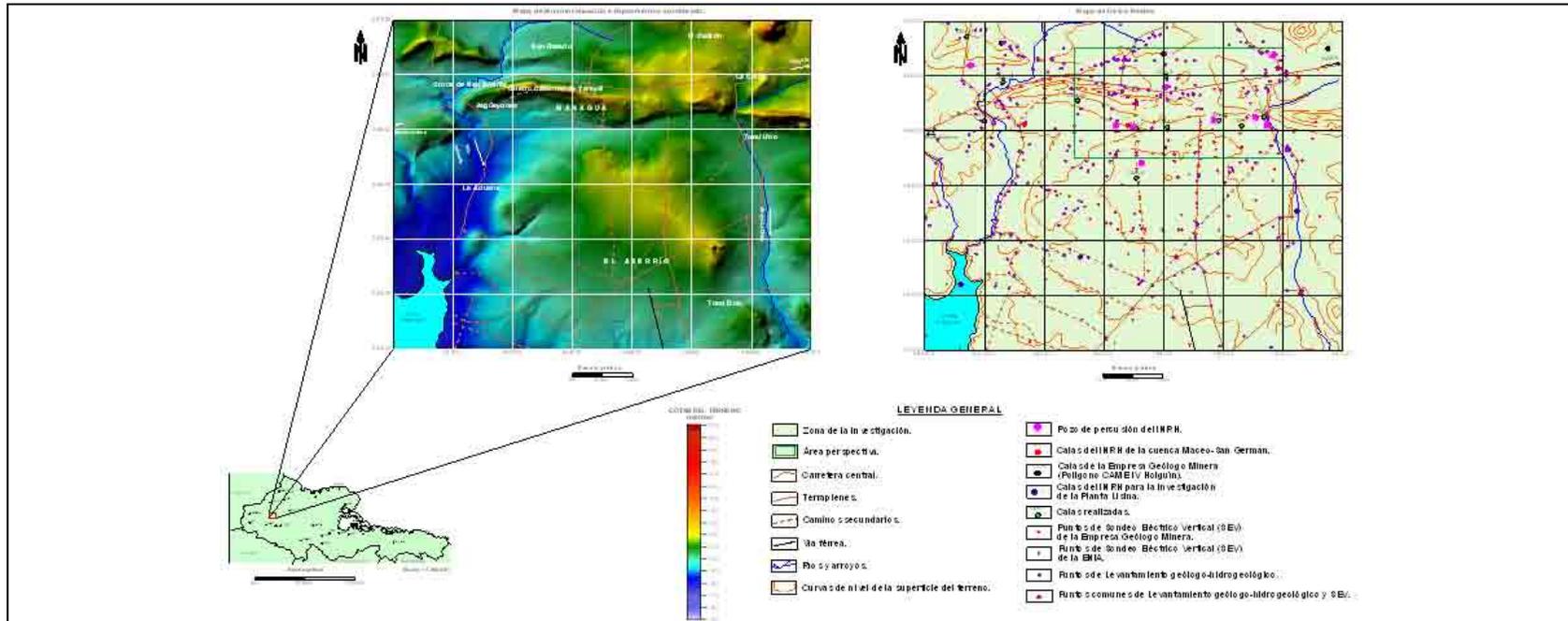
Geological Profile_2 of Manzanillo City



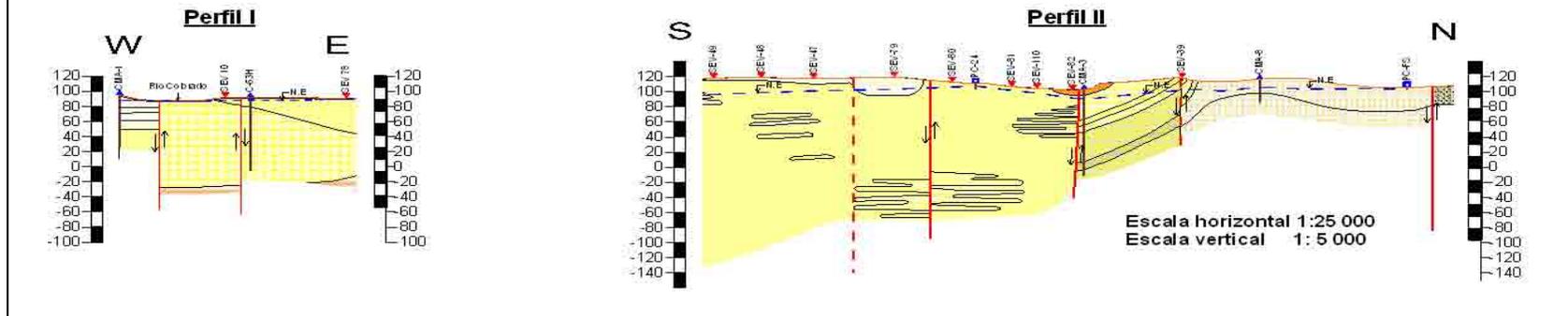
Route Map of tunnel channel and pipeline for water convey plan



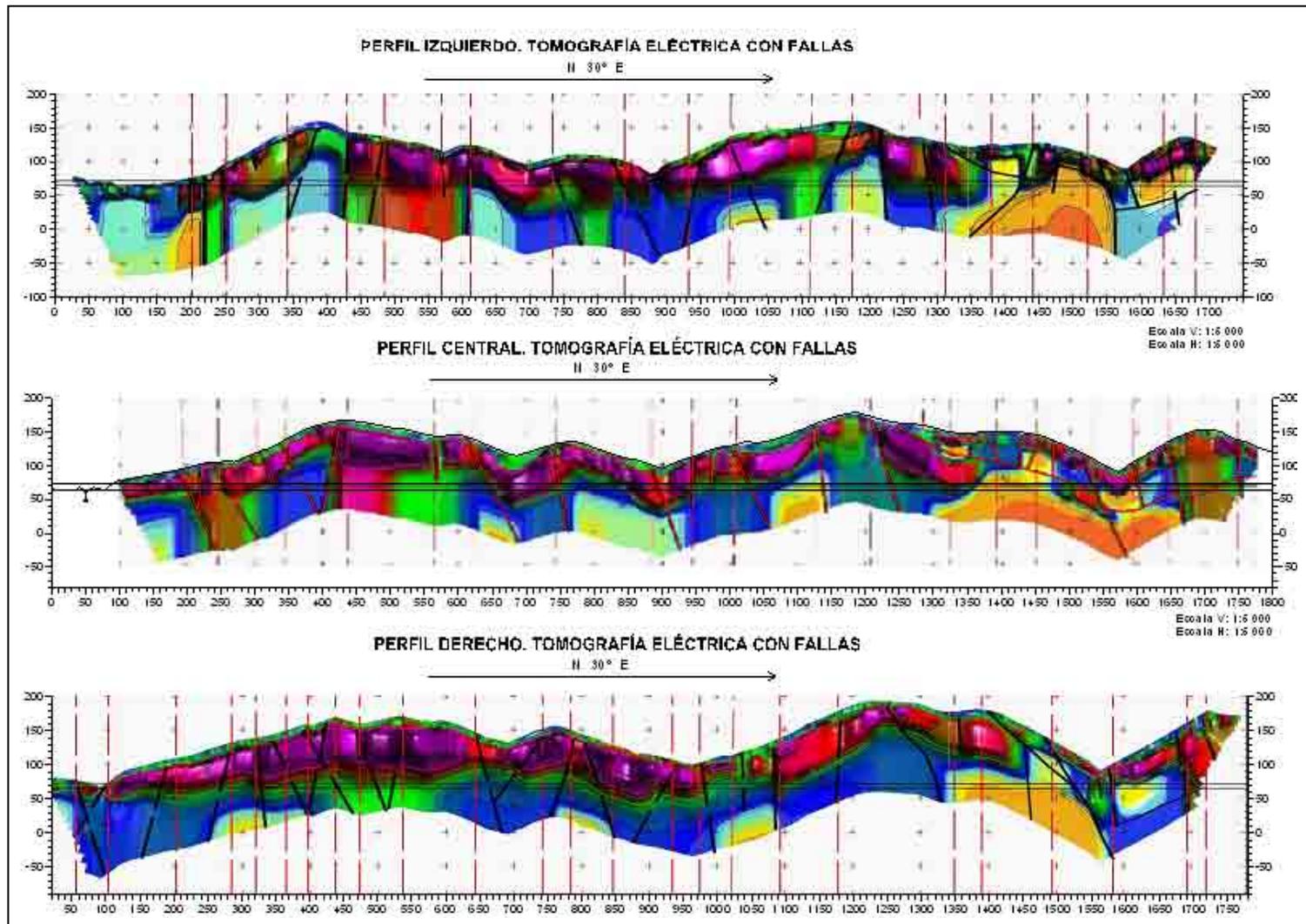
Topography in and around the Beer Plant



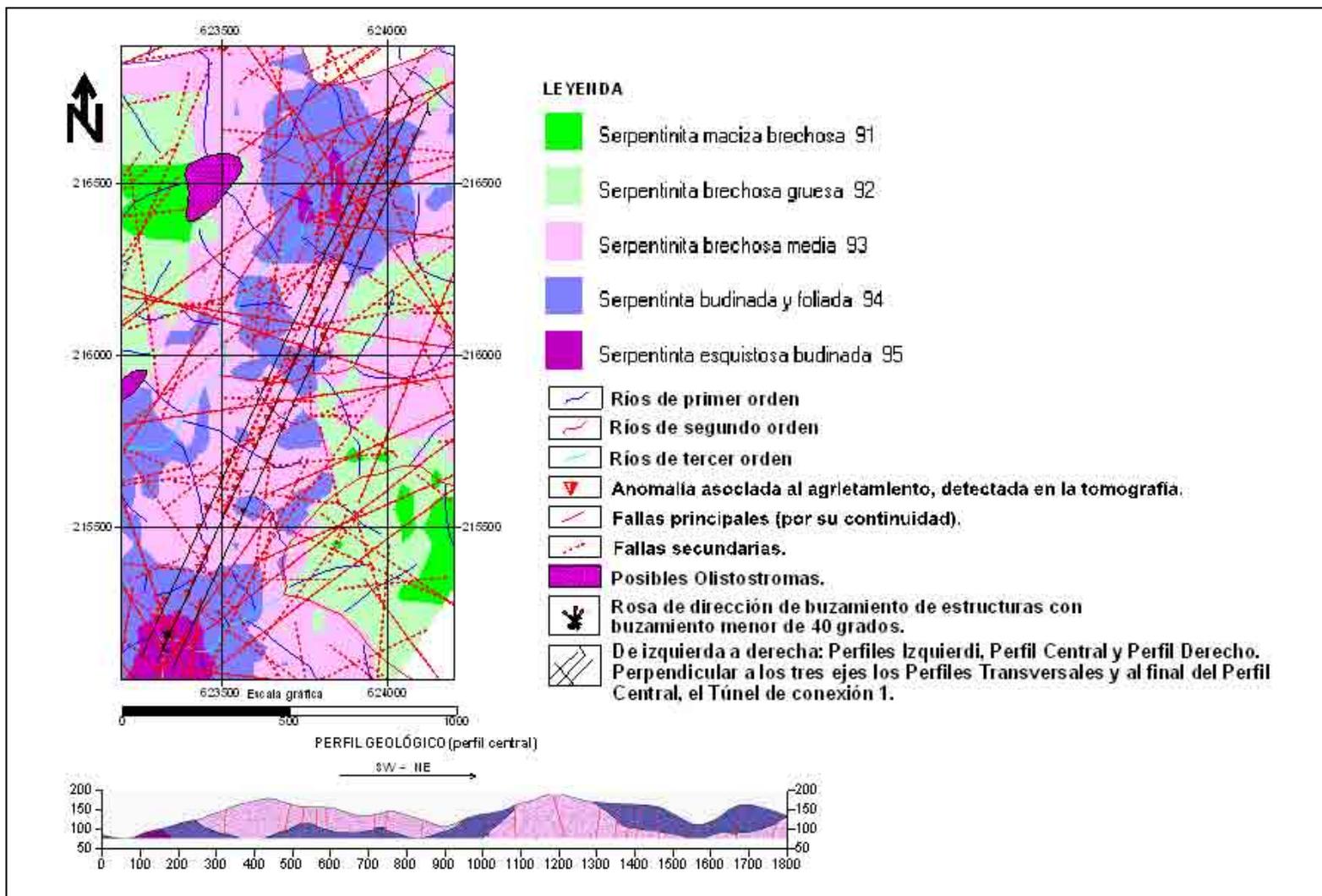
Horizontal Vertical Geological Profiles under the Beer Plant



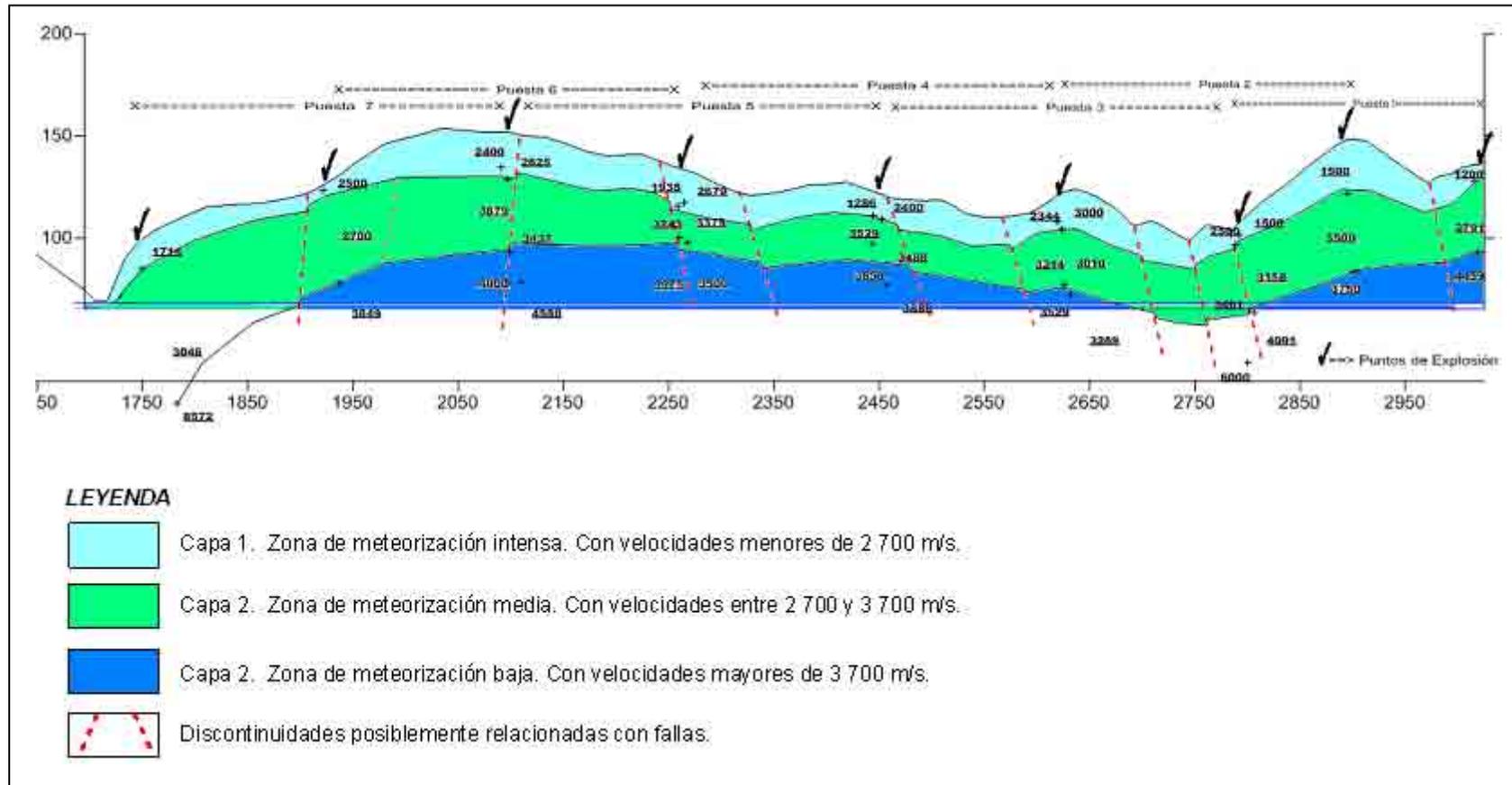
Profiles of Tunnel Rout



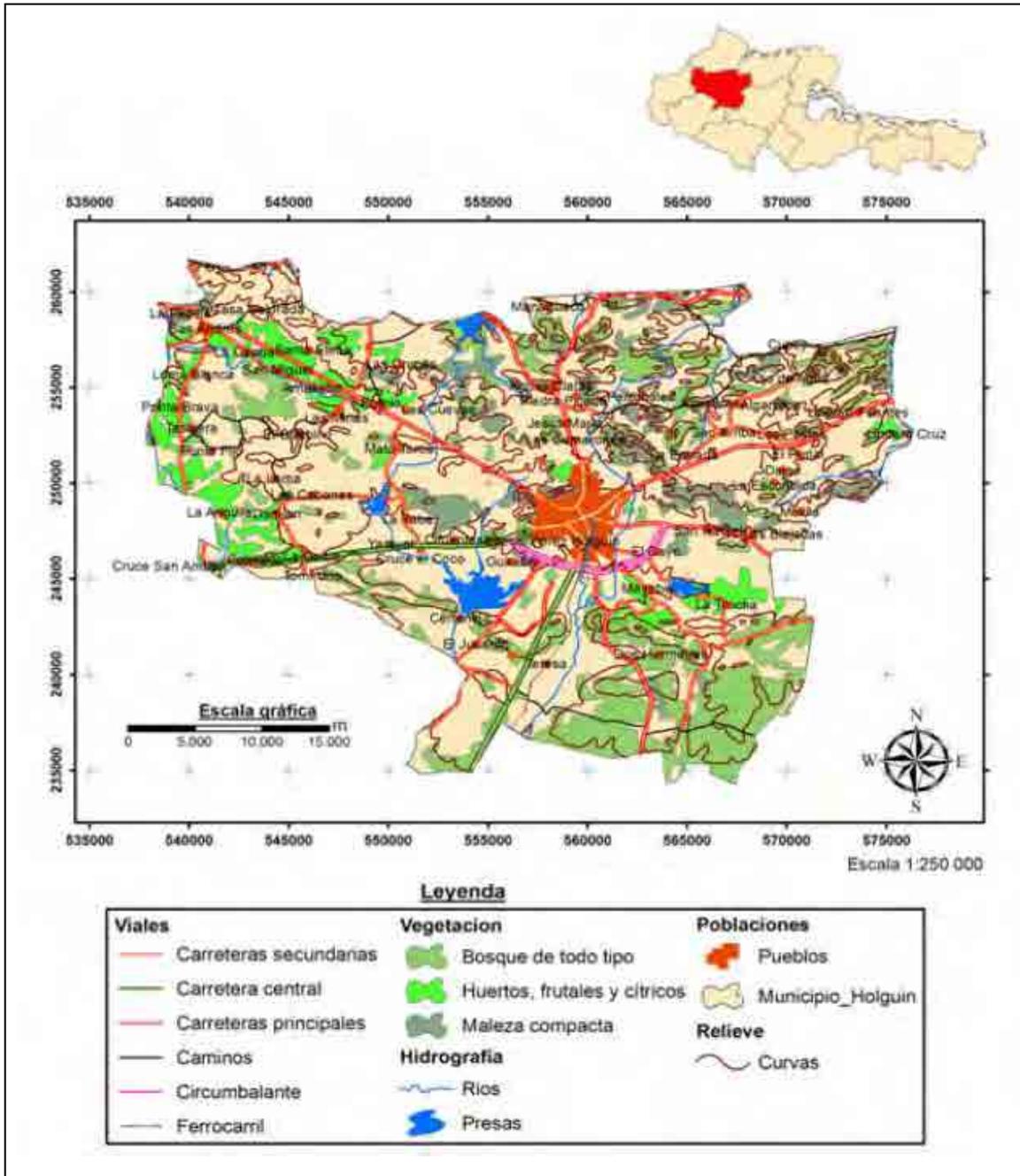
Geological Map Geological Profile of Tunnel Rout



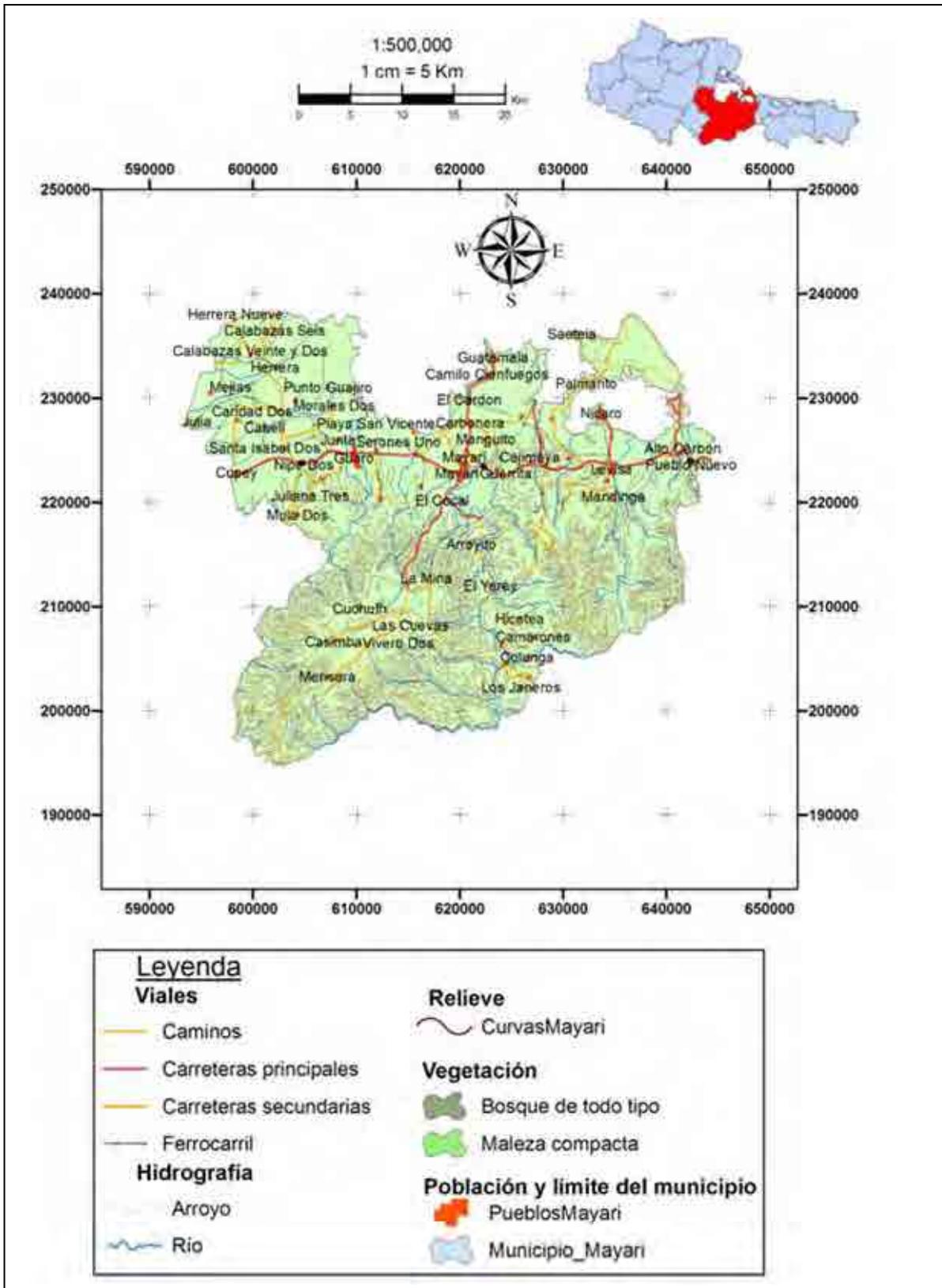
Profile of Tunnel Rout



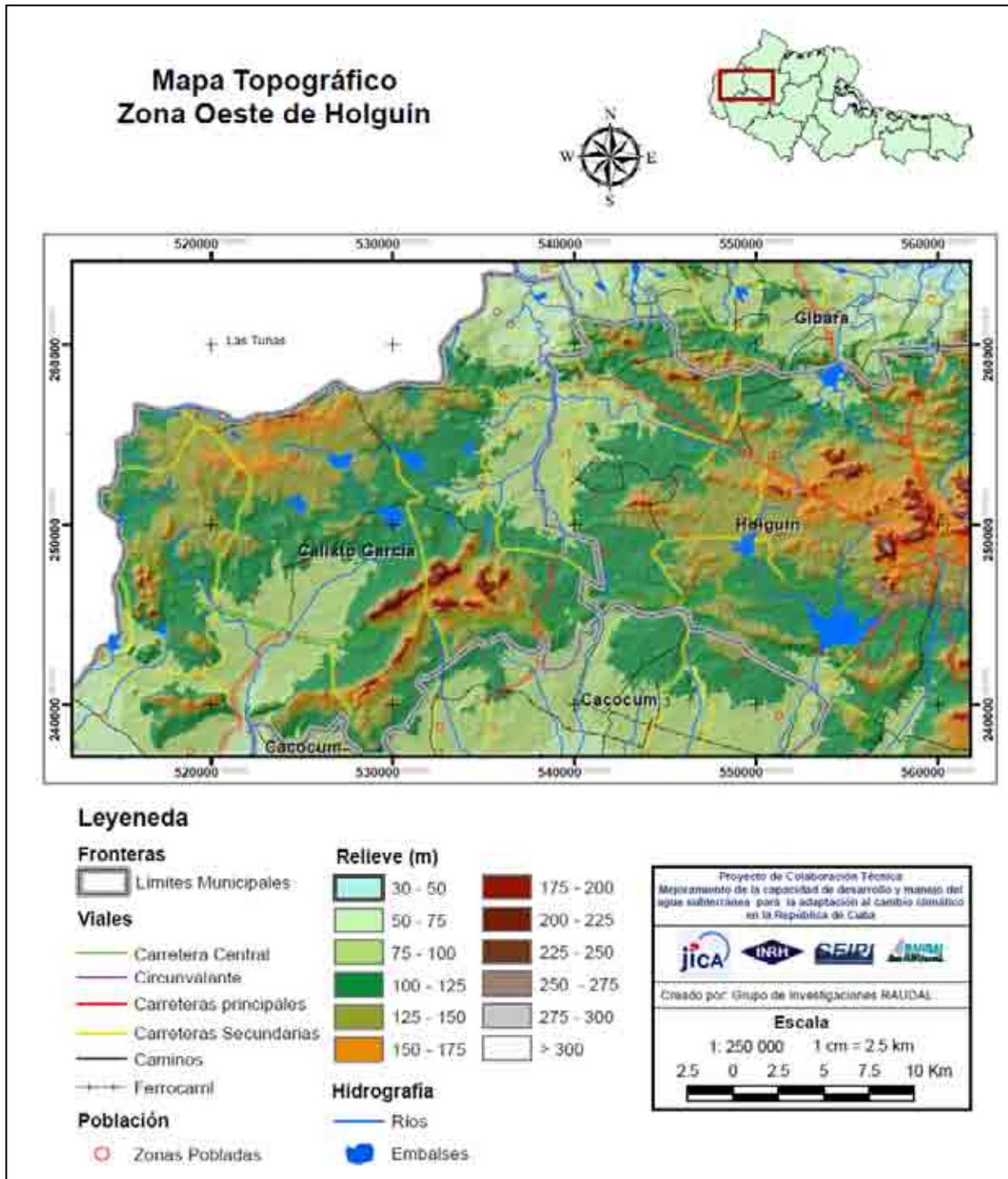
Geographic Features of Holguin City, Holguin



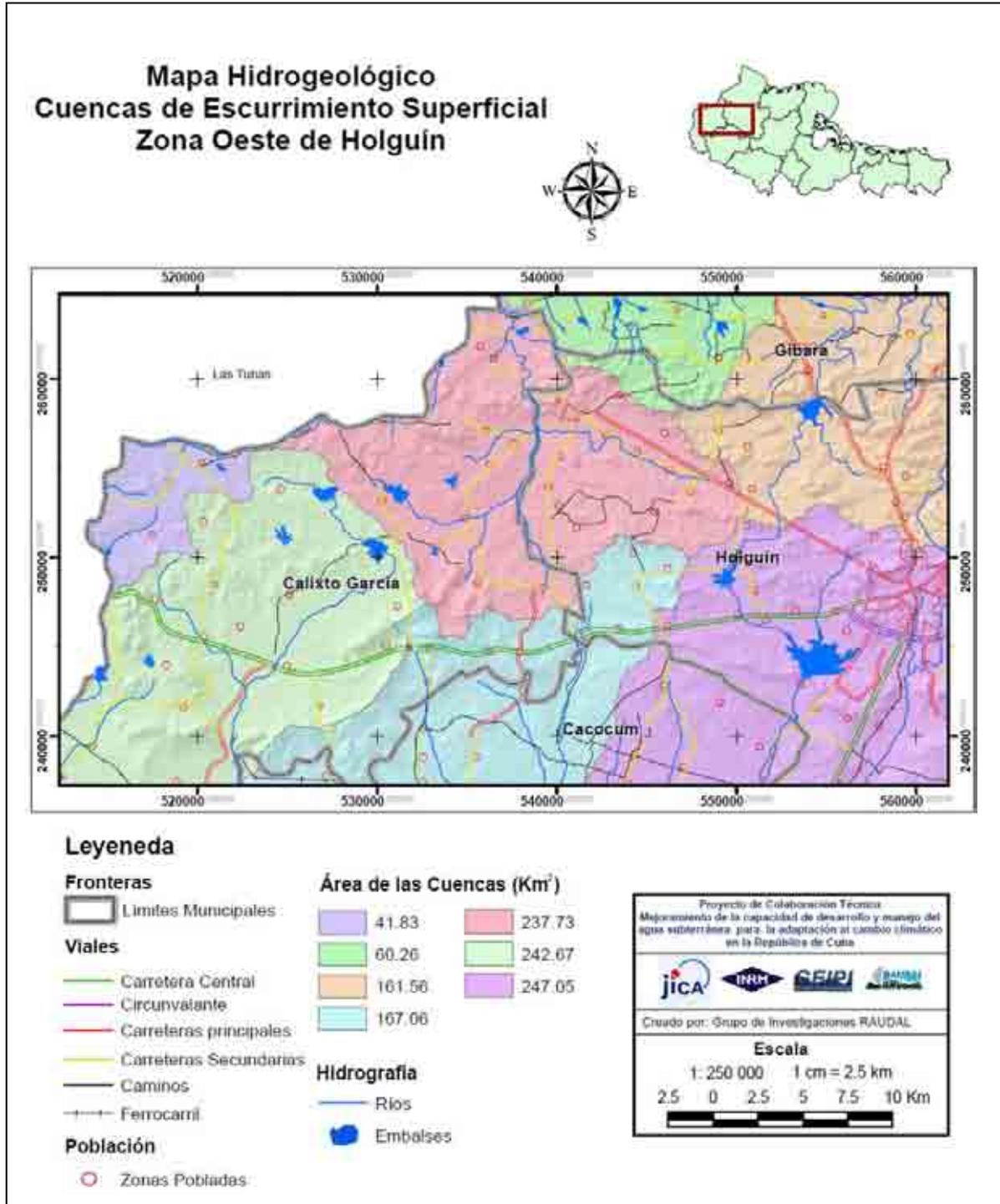
Geographic Features of Mayali City, Holguin



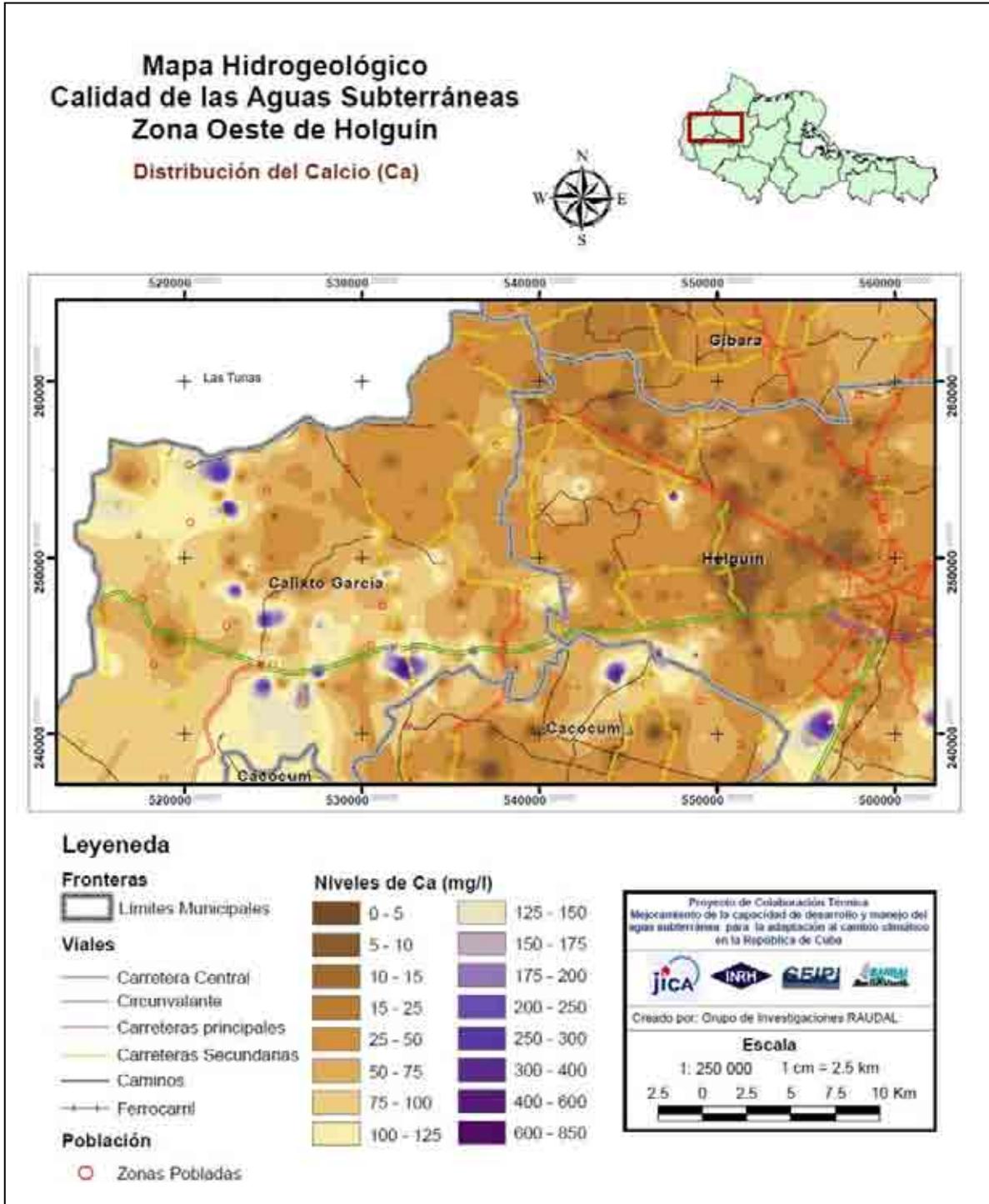
Topography of Zone Oeste, Holguín



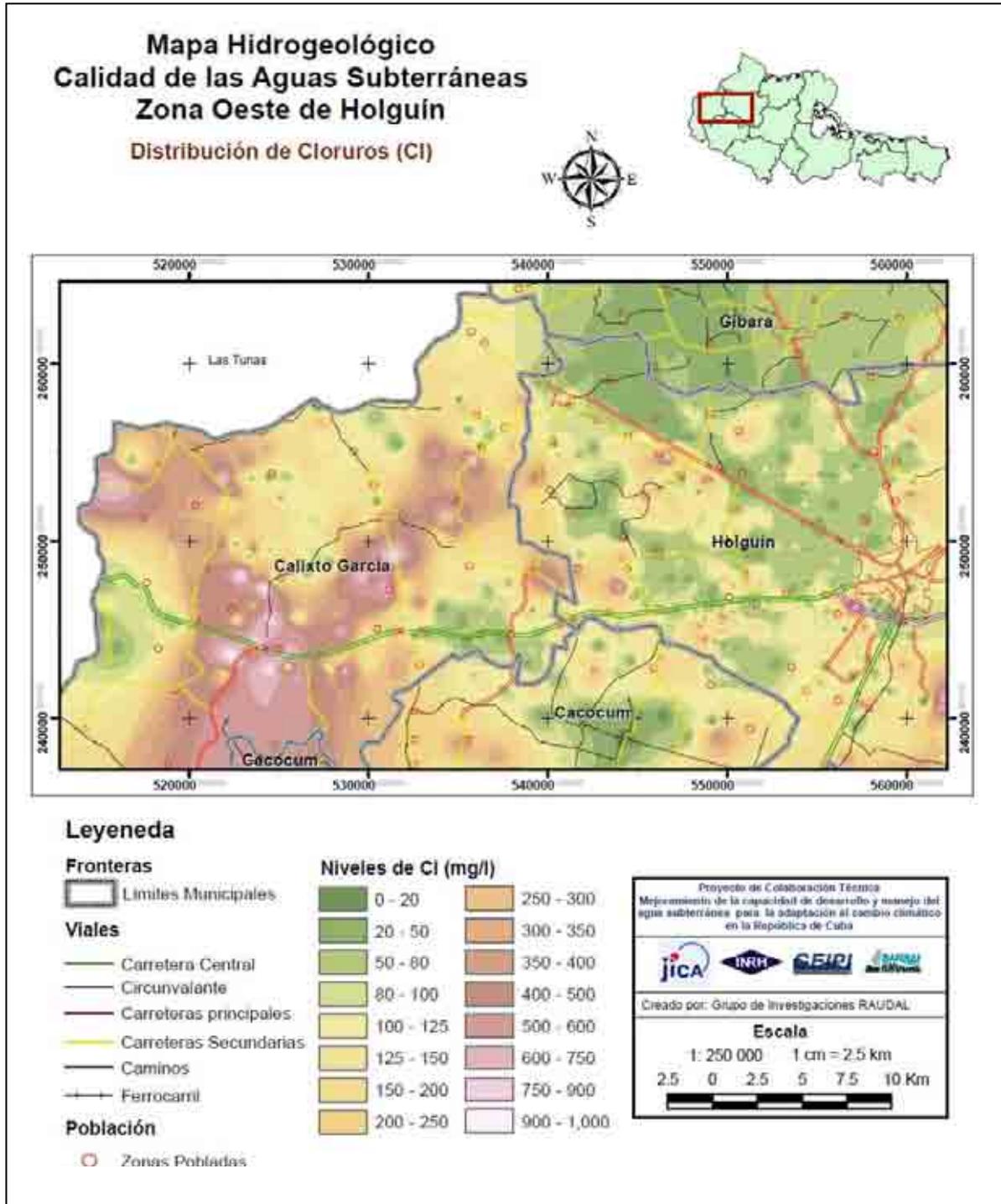
Groundwater Basin Distribution in Zone Oeste, Holguín



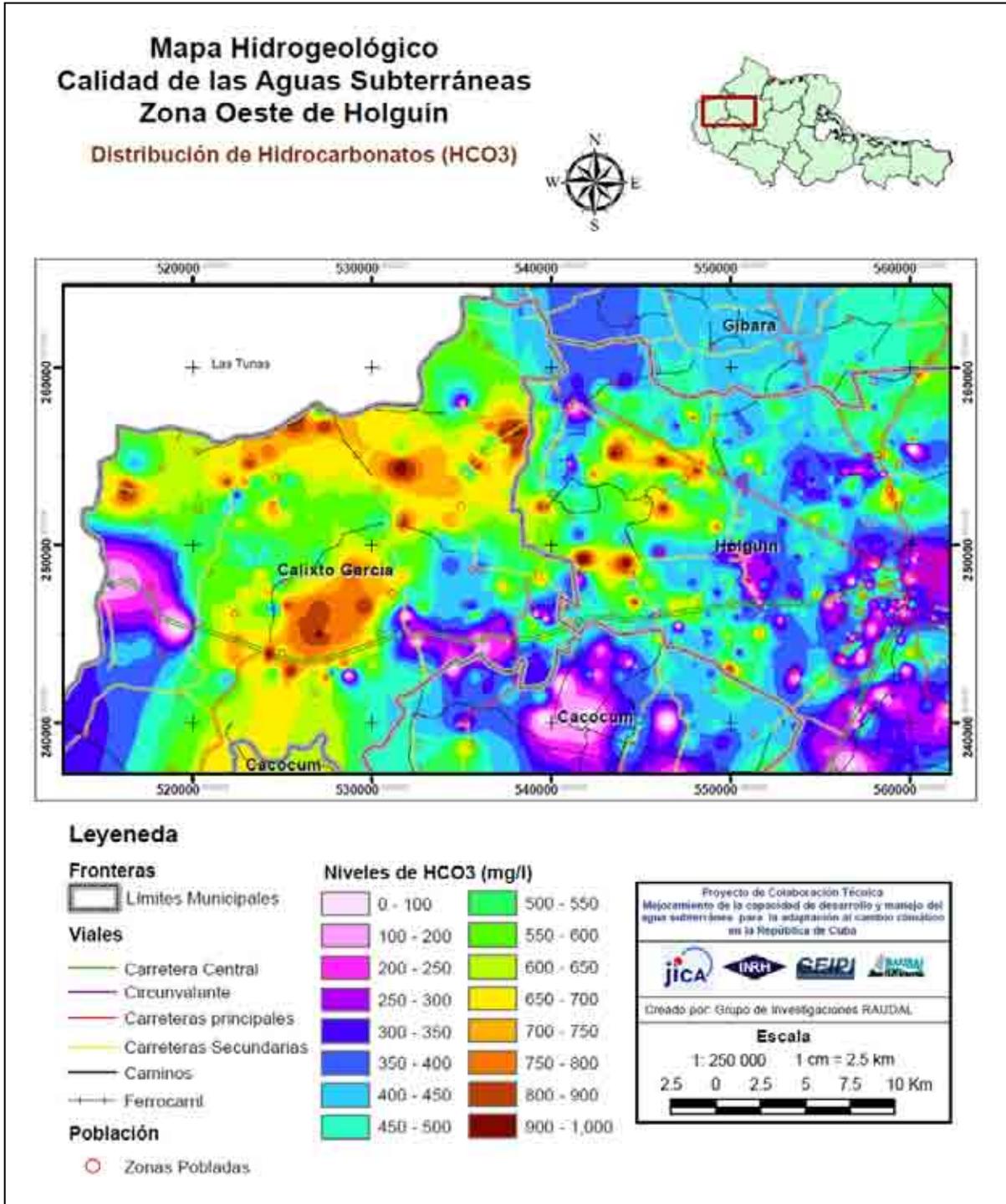
Groundwater Quality (Ca) Distribution in Zone Oeste, Holguin



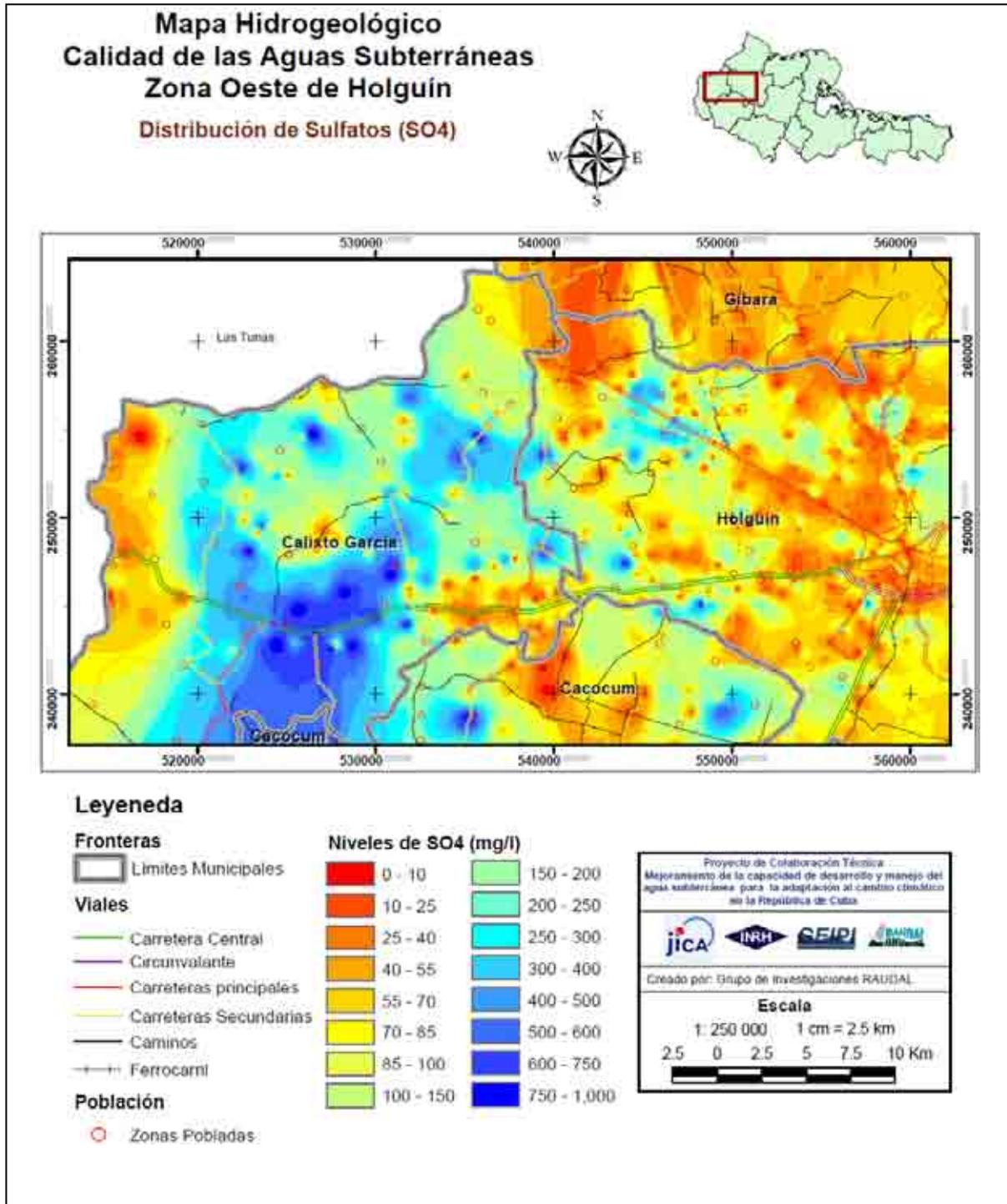
Groundwater Quality (Cl) Distribution in Zone Oeste, Holguín



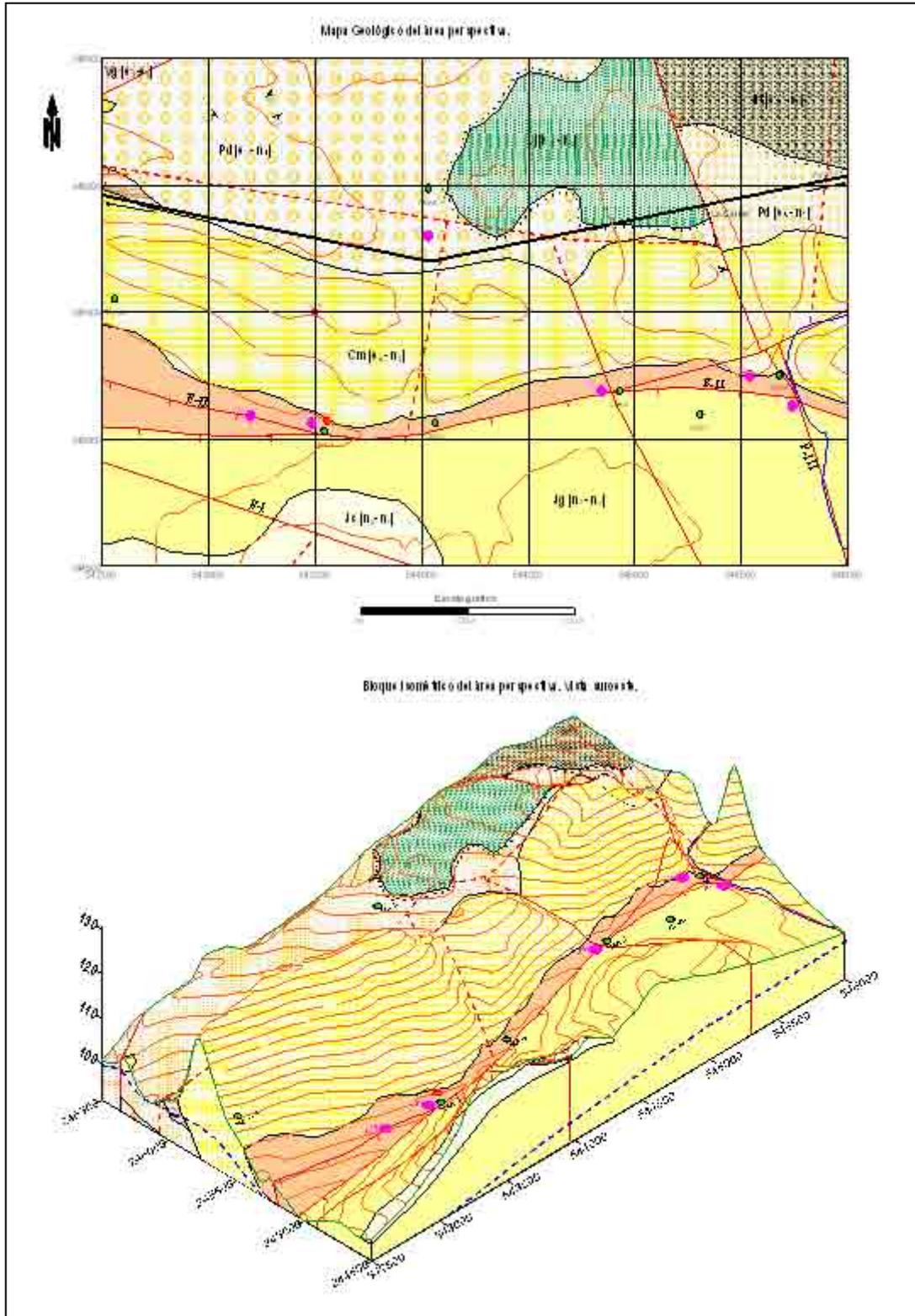
Groundwater Quality (HCO₃) Distribution in Zone Oeste, Holguín



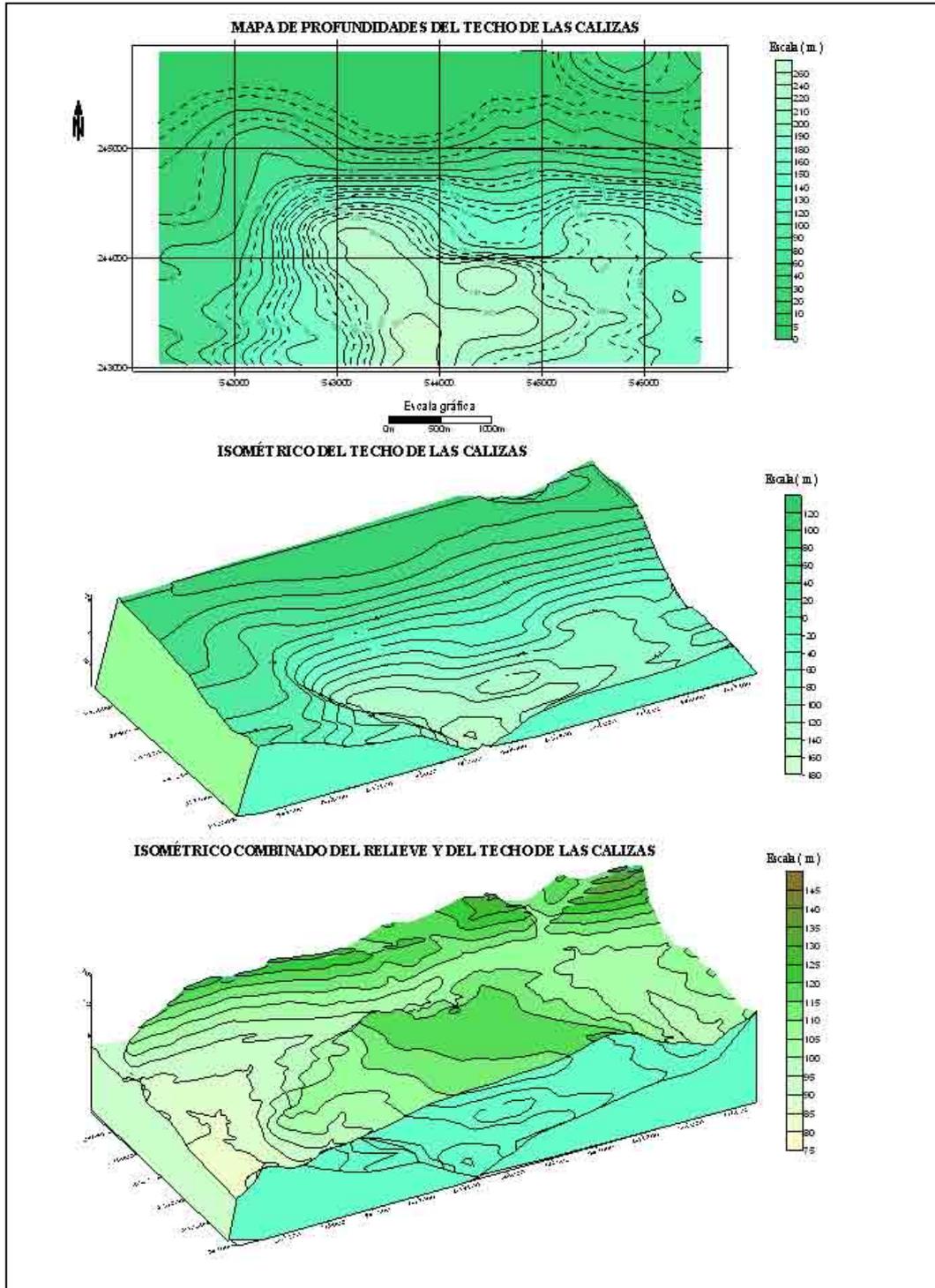
Groundwater Quality (SO4) Distribution in Zone Oeste, Holguín



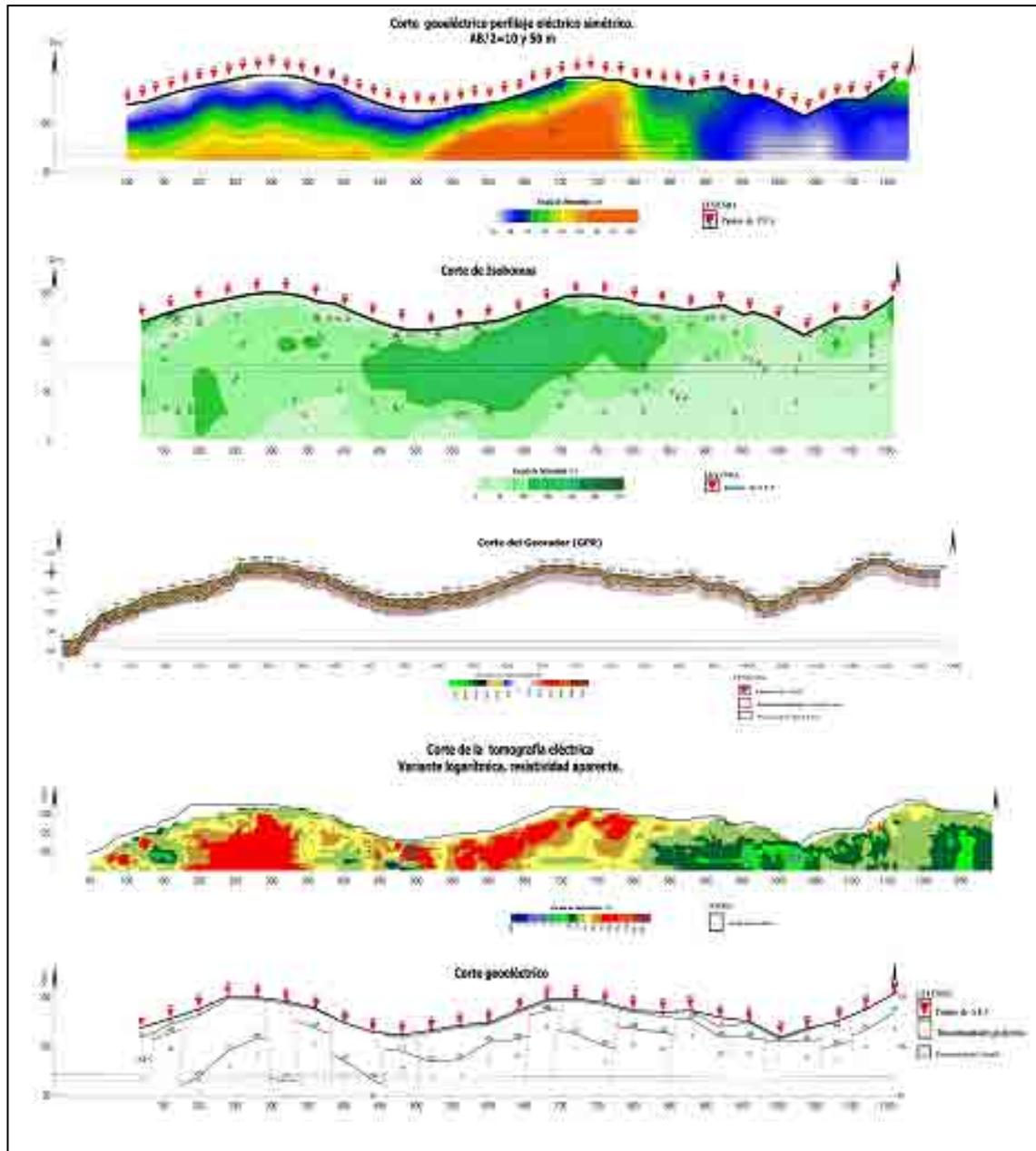
Geological map and profile in and dear the Beer Plant



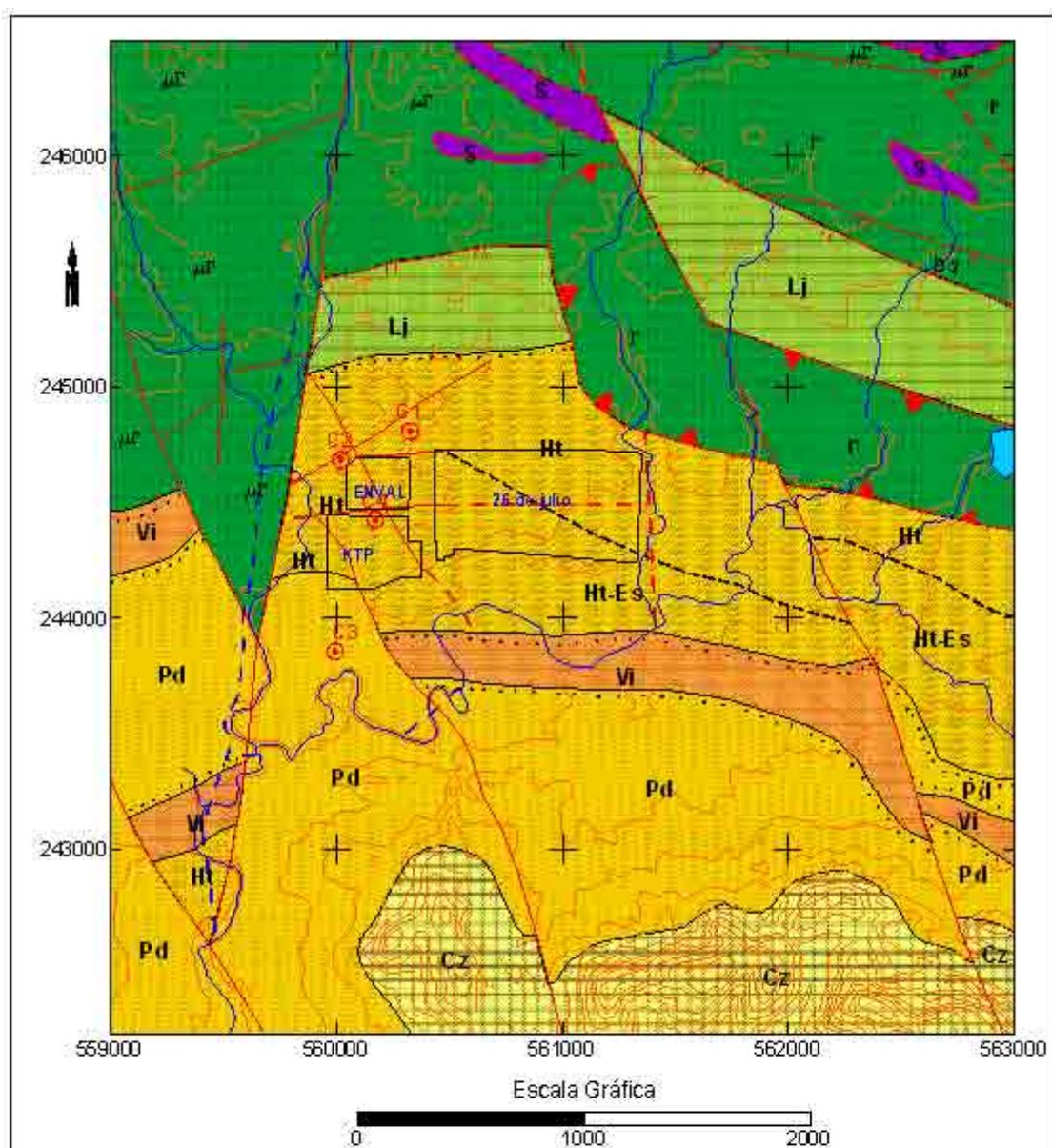
Map of Limestone layer thickness in and around the Beer Plant



Profile of Electric Resistant of the Tunnel Rout



Geological Map of Aluminio, Holguin.



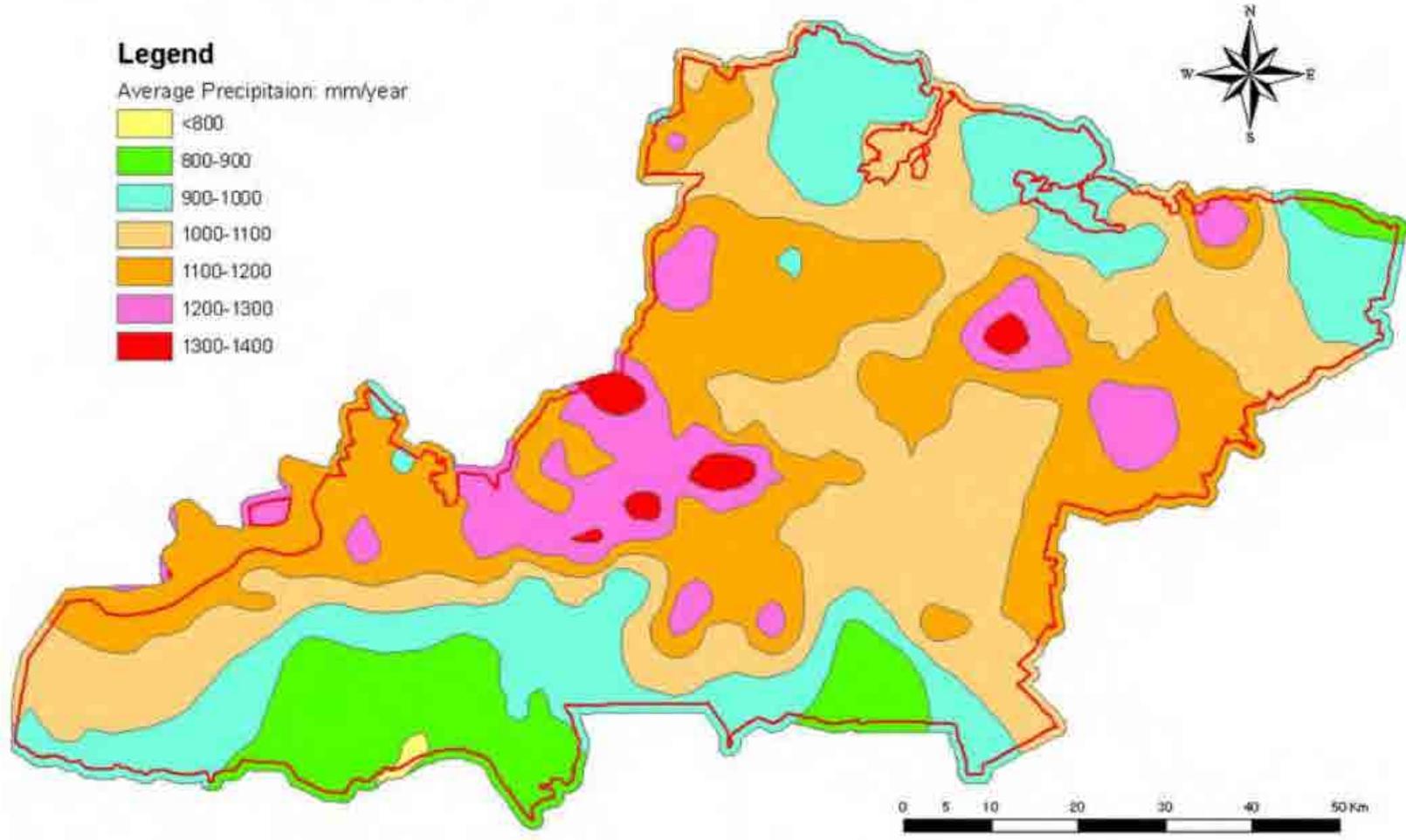
		U.E.B.G.P. HOLGUIN GRUPO DE INGENIERIA GEOLÓGICA E HIDROGEOLOGÍA			INVESTIGACIONES HIDROGEOLOGICAS PARA ABASTO A LA EMPRESA DE ENVASES DE ALUMINIO HOLGUIN (ENVAL).		
		NOMBRE	FIRMA	FECHA			
E mpresa I nvestigaciones P royectos H idráulicos H olguin	J. Dpto. Téc.	Ing. J. Iglesias R.		04/05	ESTUDIO HIDROGEOLOGICO.		
	Especialista	MSc. J. L. Blanco.		04/05			
	Especialista	Ing. José A. Díaz G.		04/05	MAPA GEOLÓGICO ESQUEMÁTICO.		
	Dibujó	MSc. J. L. Blanco.		04/05			
	Revisó	Ing. A. Hidalgo H.		04/05	Escala: 1:25 000	Formato (mm): 215.59 X 279.4	Área: 0.06 m ²
				Código: H-G-56		Plano N° 2a	

Provincia de Las Tunas

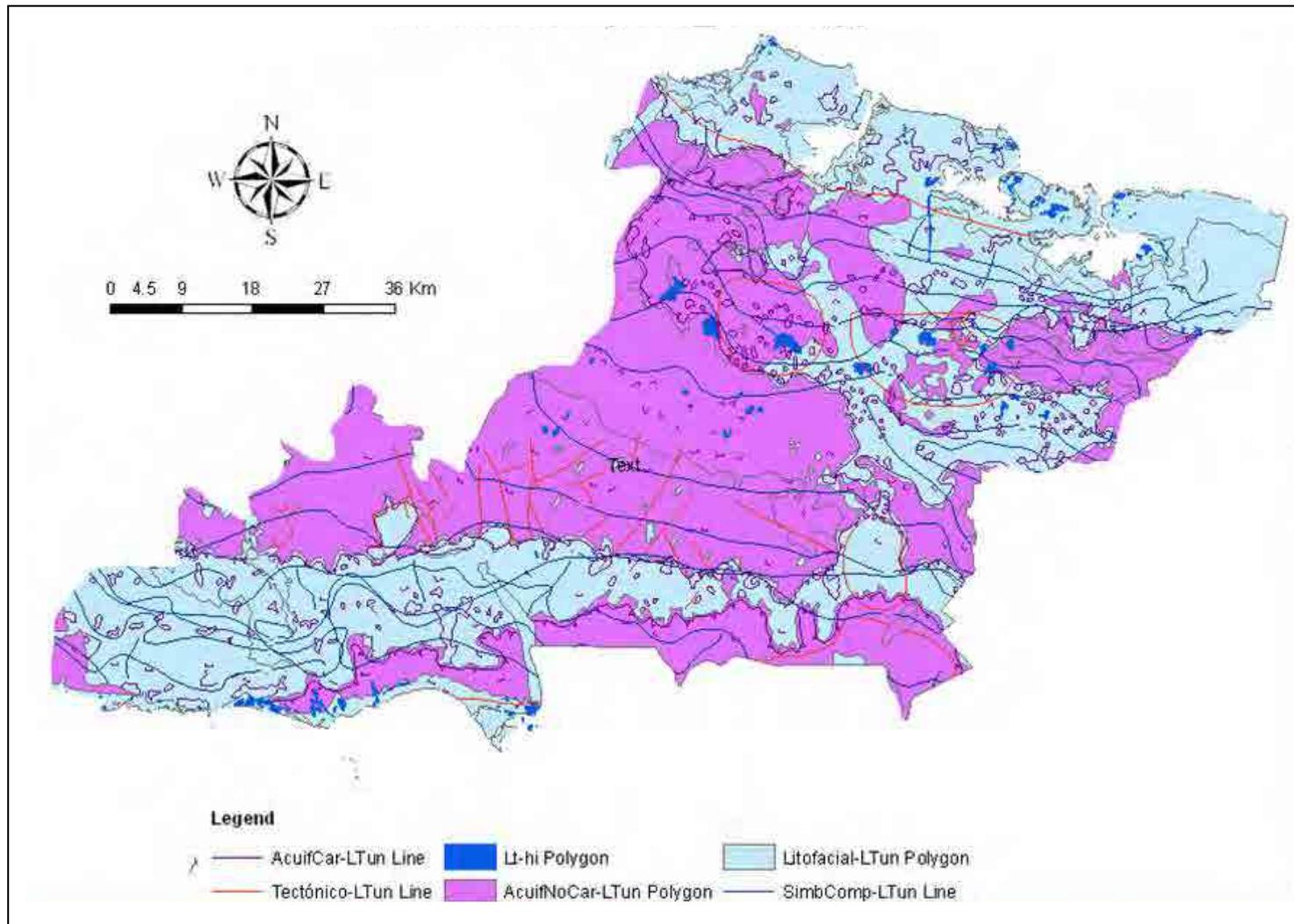
Contour of Precipitation in Las Tunas Province, Cuba

Legend

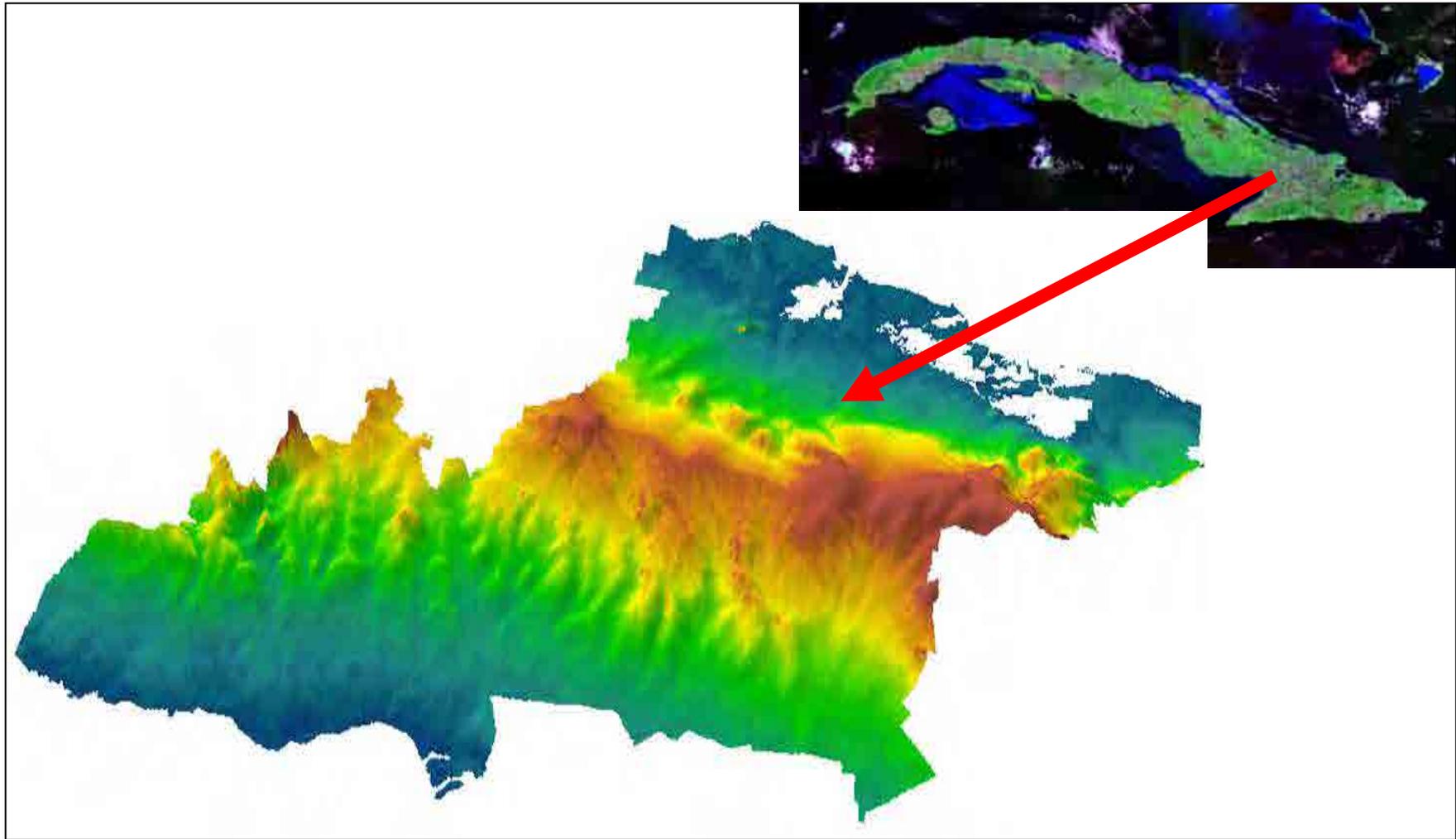
Average Precipitation: mm/year



Hydrogeological Map of Las Tunas Province



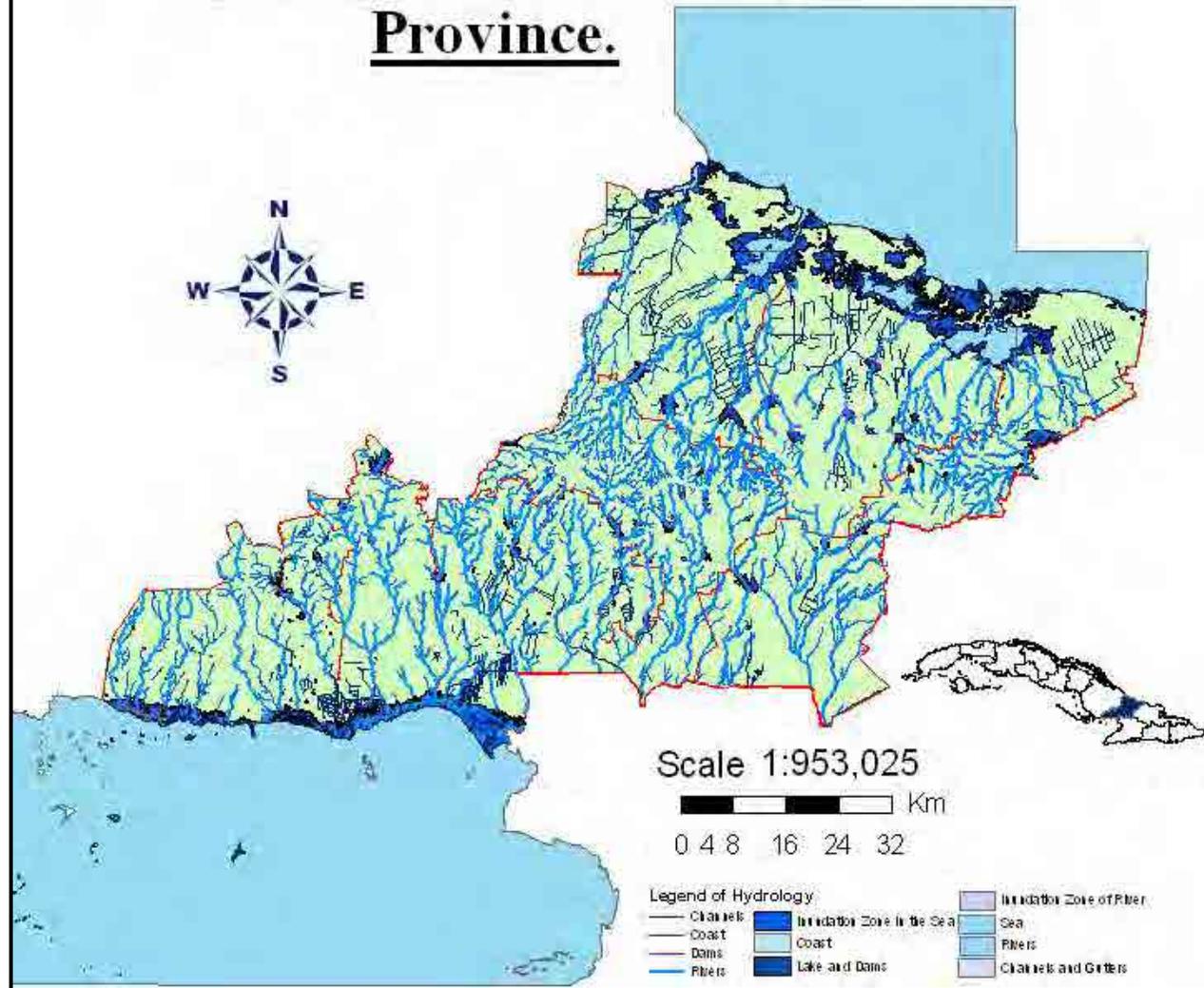
3D Topography Map of Las Tunas Province



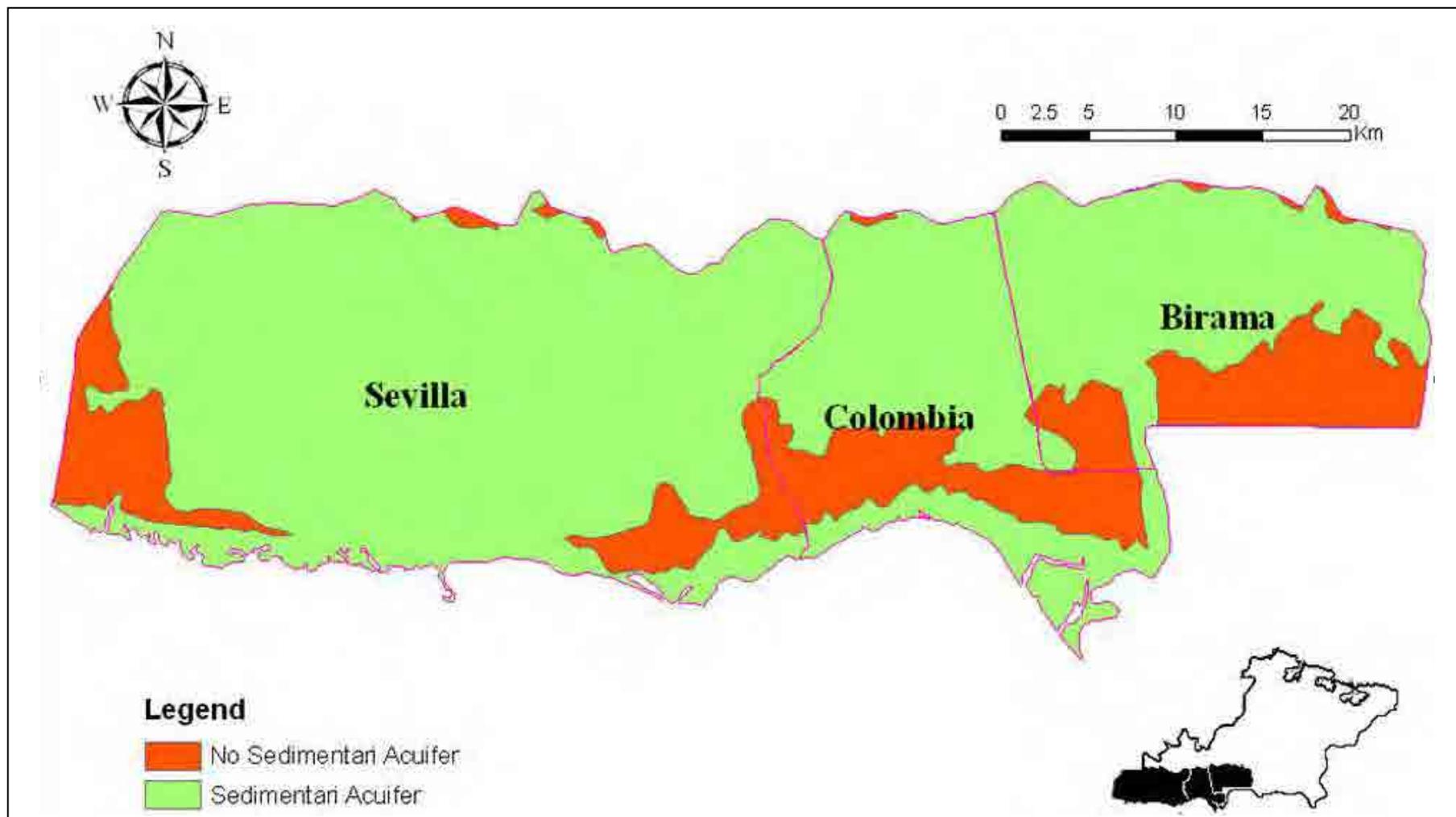
Rivers and Basins in Las Tunas province, Cuba



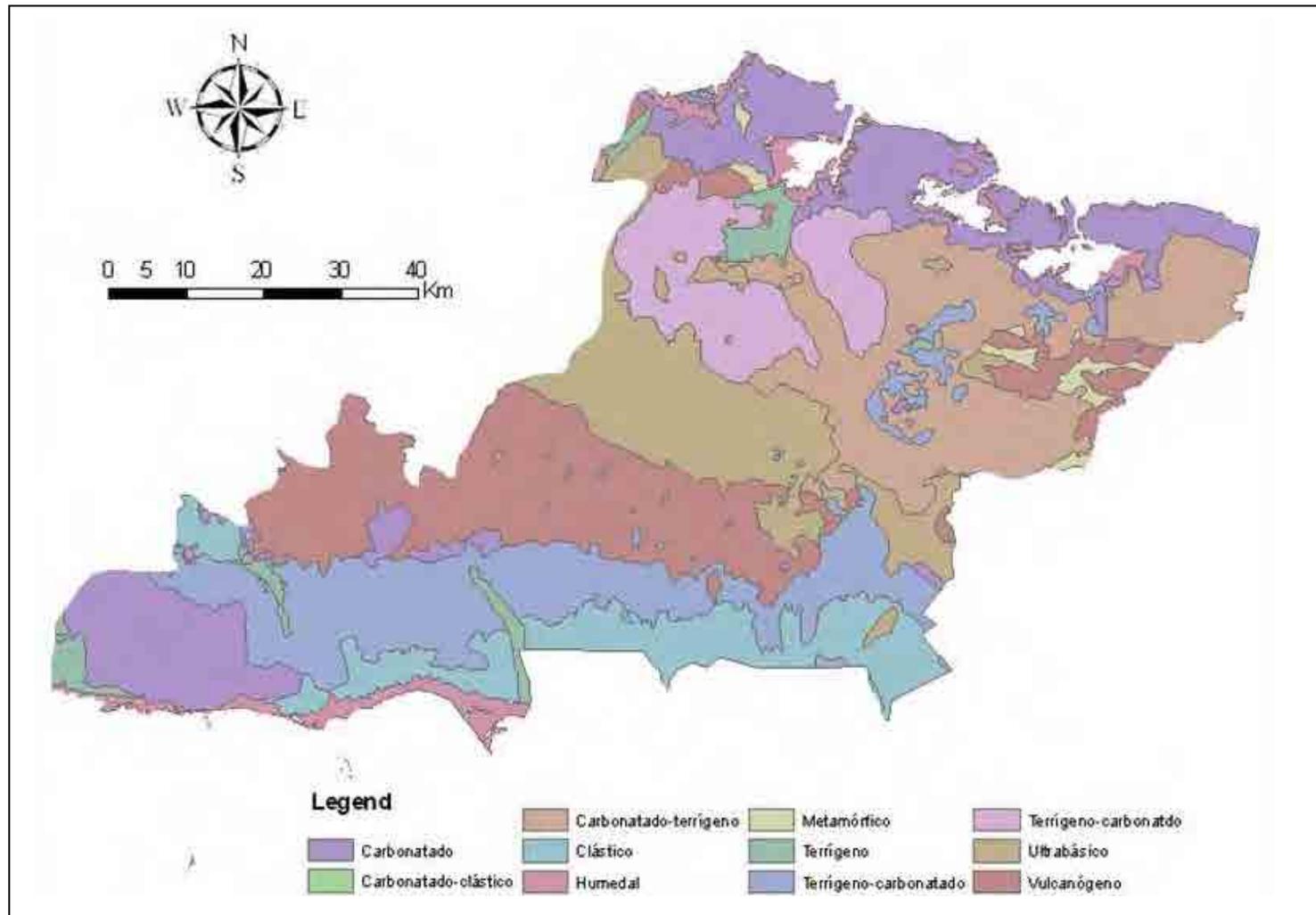
Hydrology of Las Tunas Province.



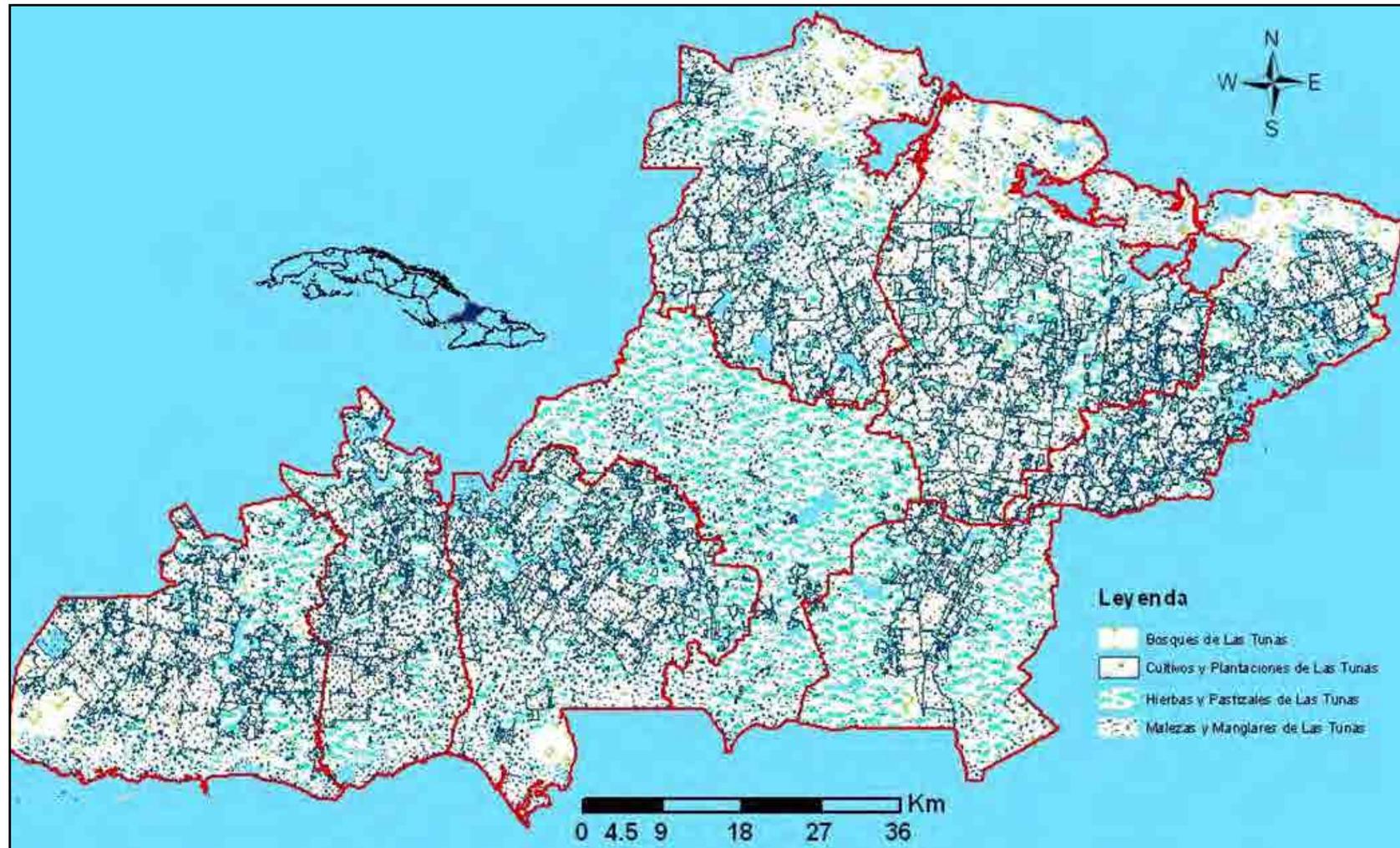
Three Groundwater Basins in Southern Part of Las Tunas Province



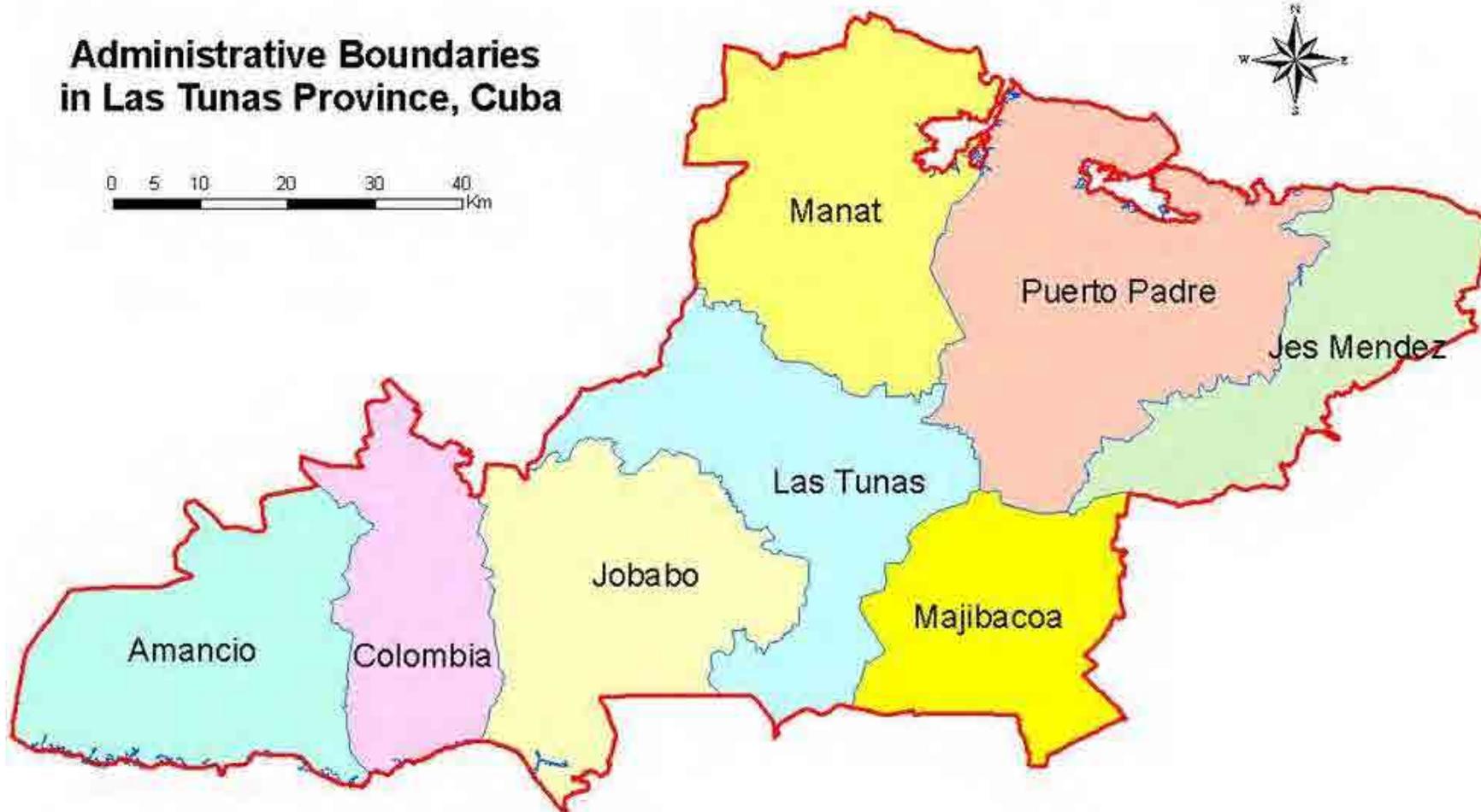
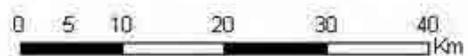
Land Use Map of Las Tunas Province



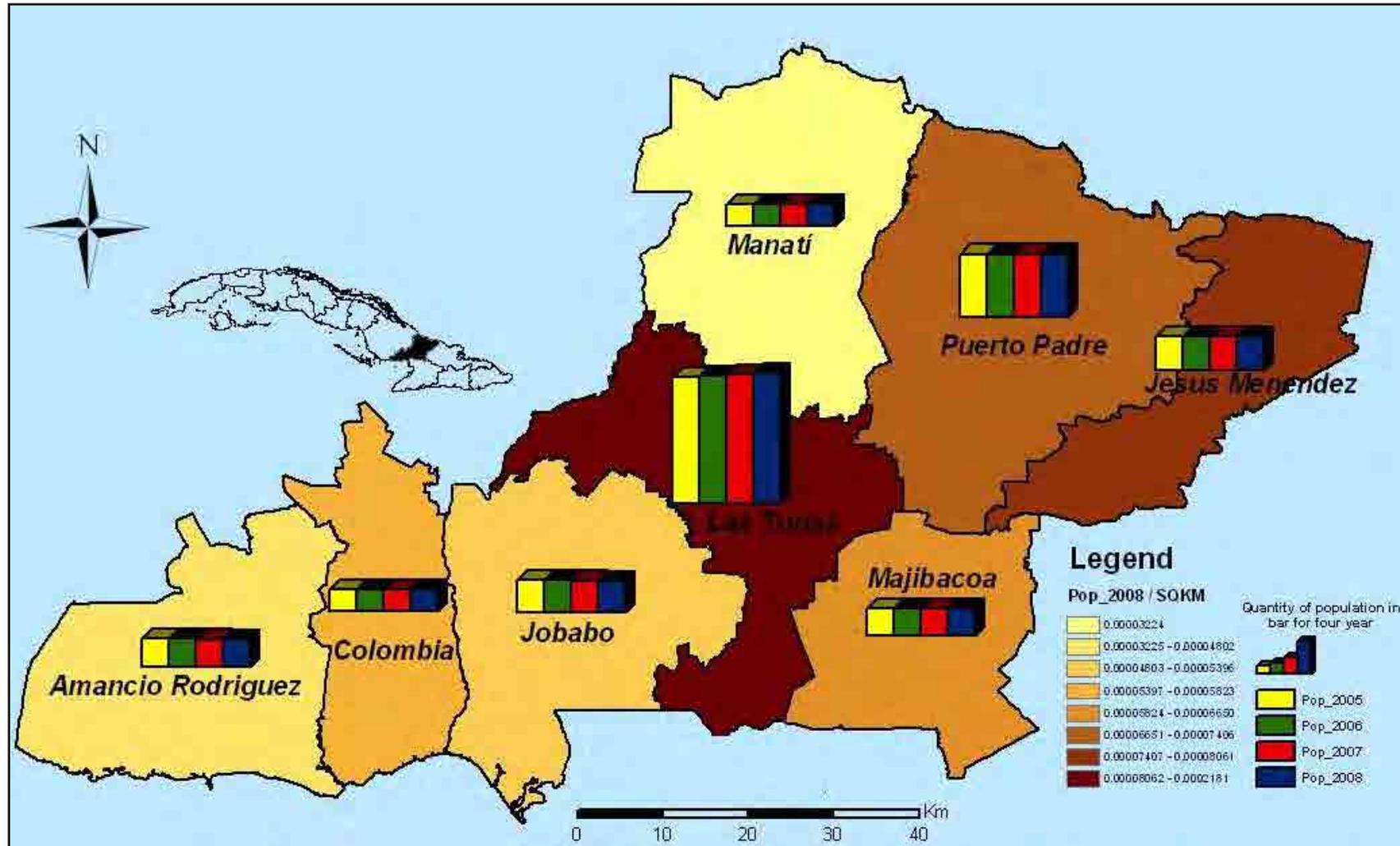
Vegetation Distribution in Las Tunas Province



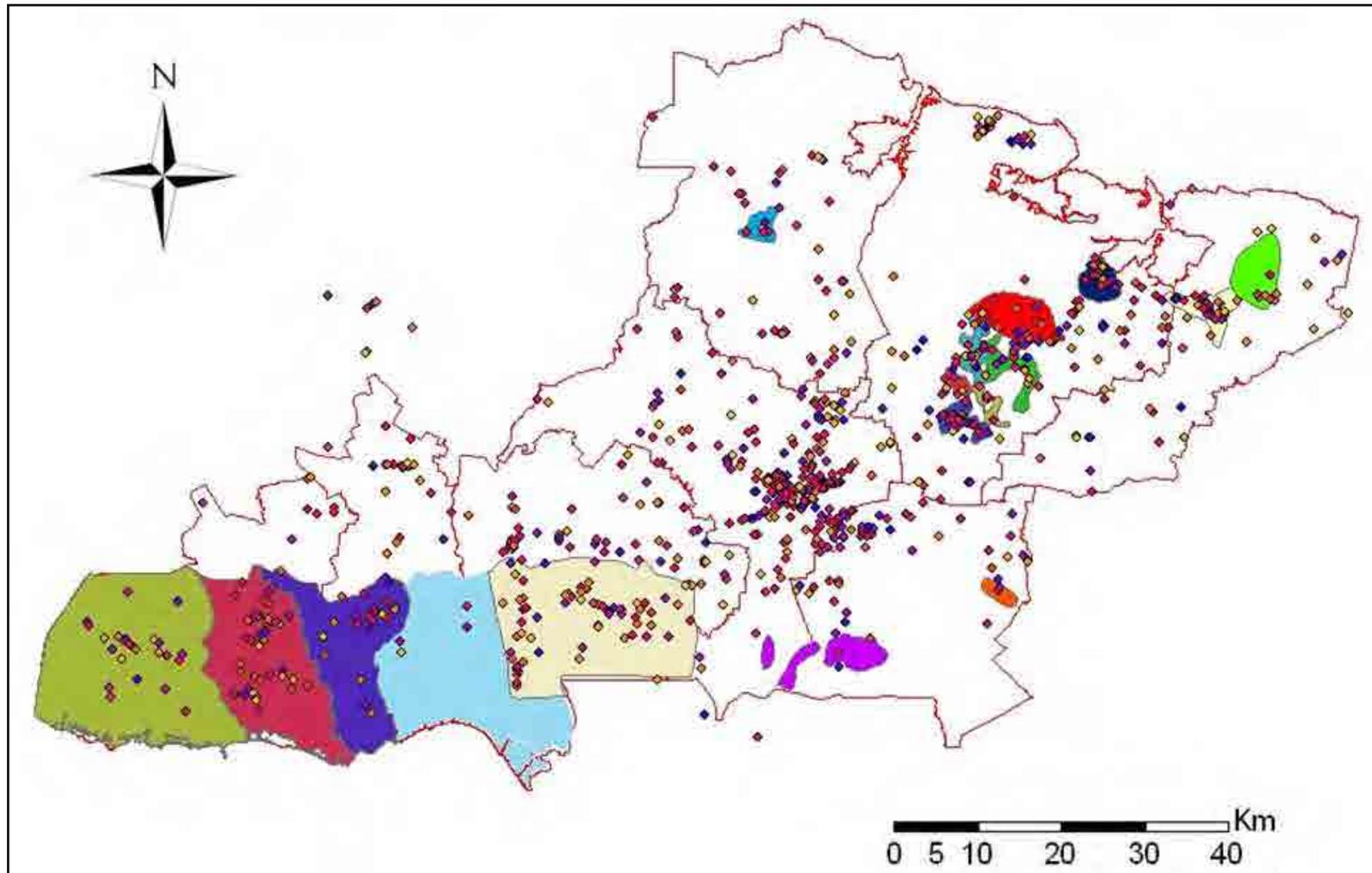
Administrative Boundaries in Las Tunas Province, Cuba



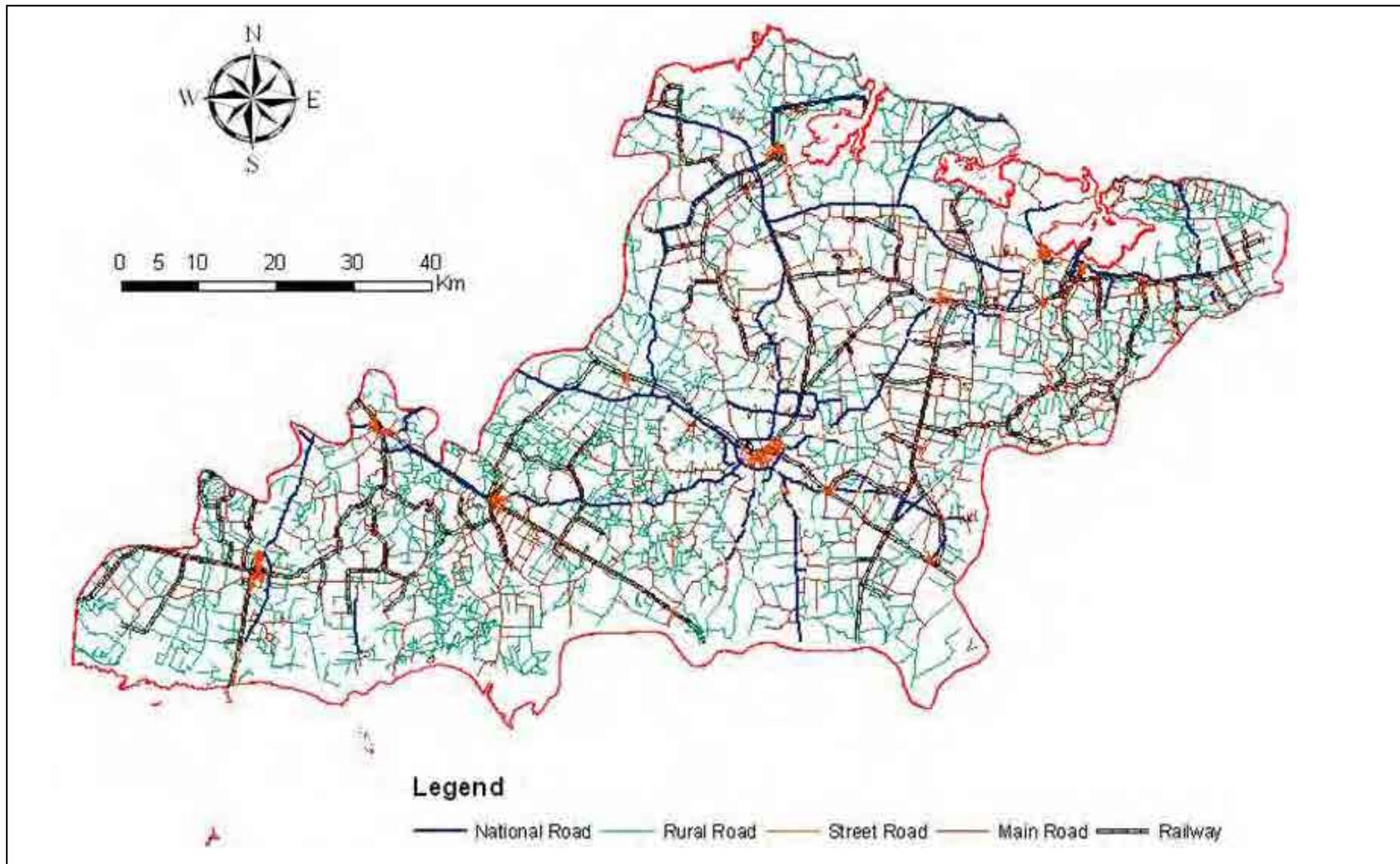
Population Distribution, Density and Change in Each Municipal in Las Tunas province



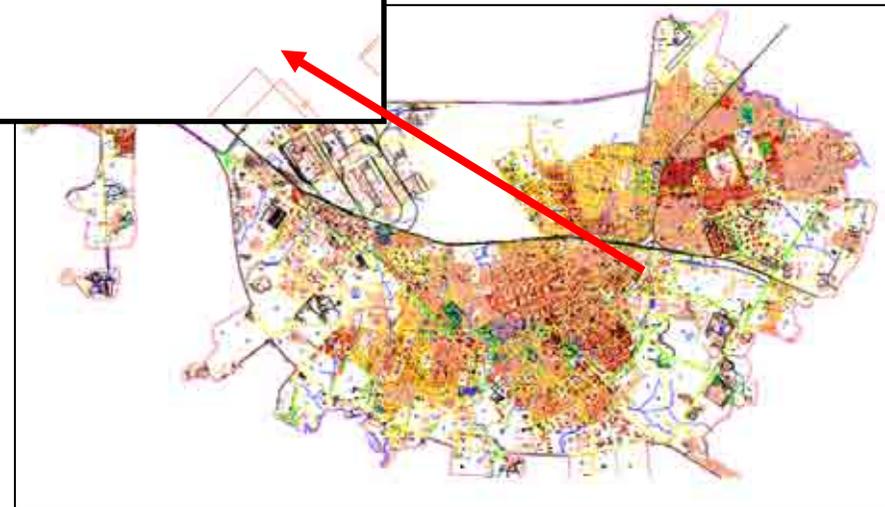
Distribution of Wells with Pumping Test Result in Las Tunas Province



Roads and railway Map of Las Tunas province



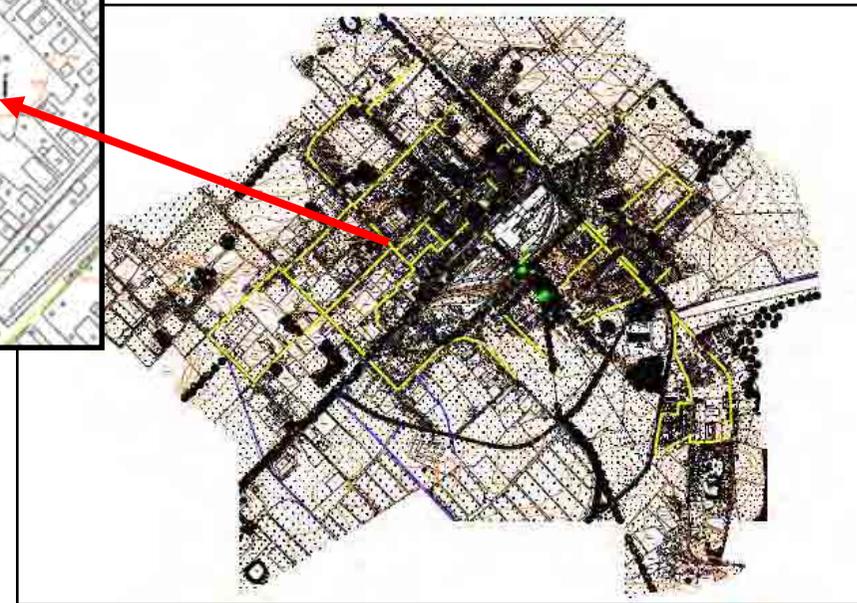
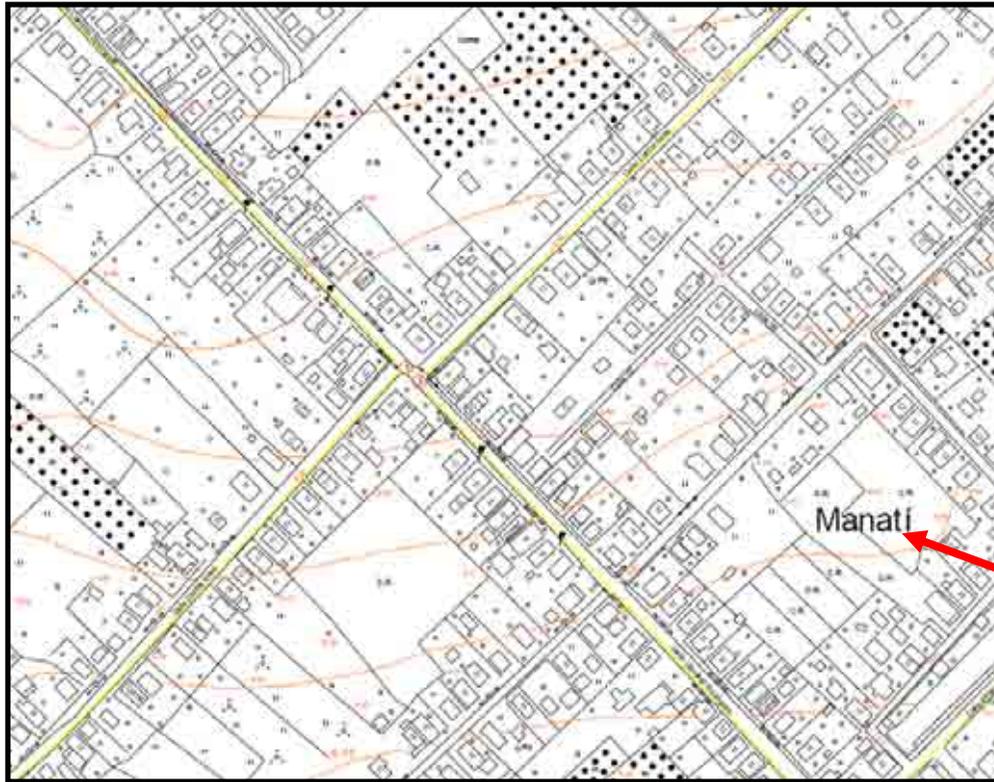
Water Supply System in Las Tunas City, Las Tunas Province



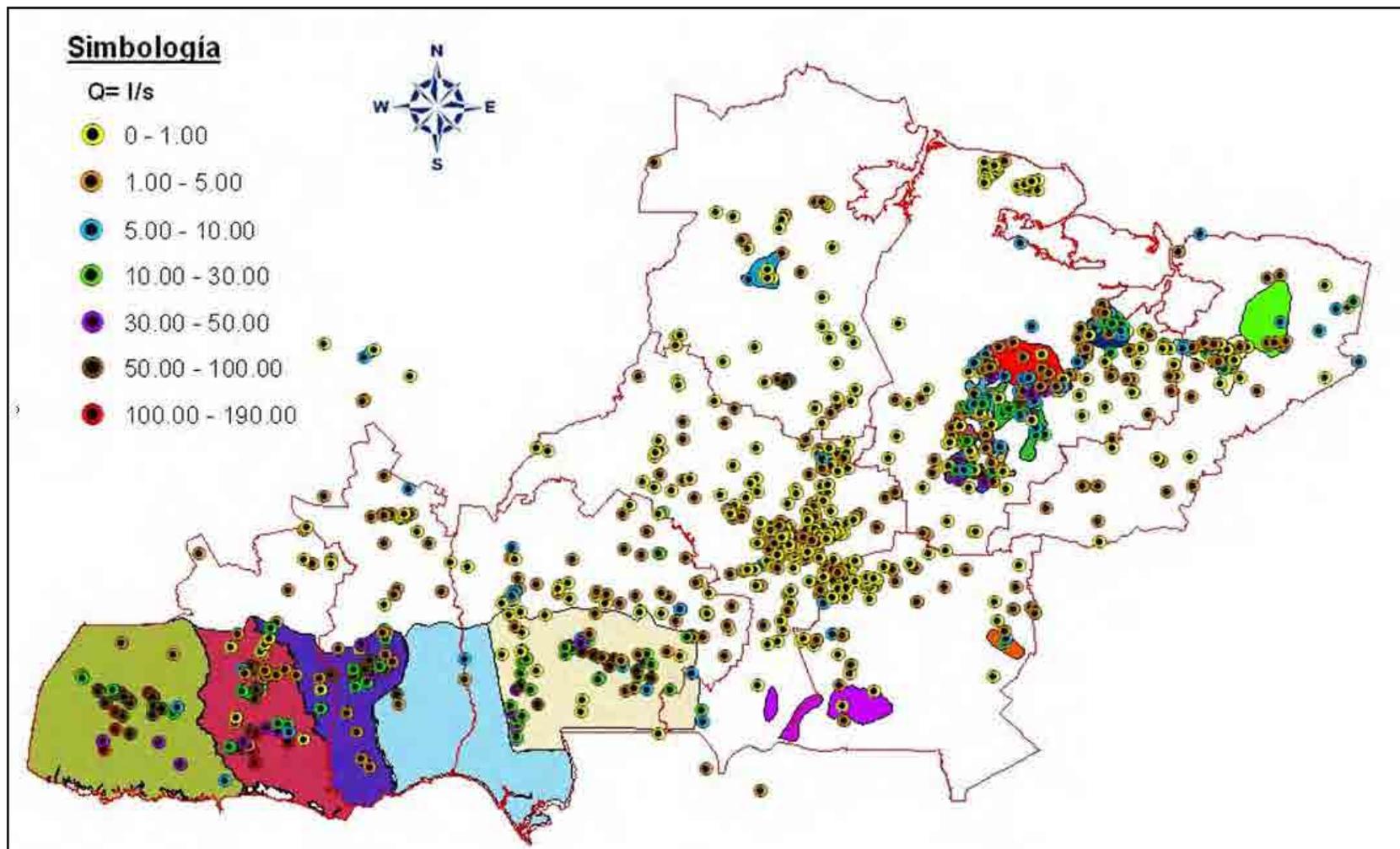
Water Supply System in Jesus Menendez City, Las Tunas Province



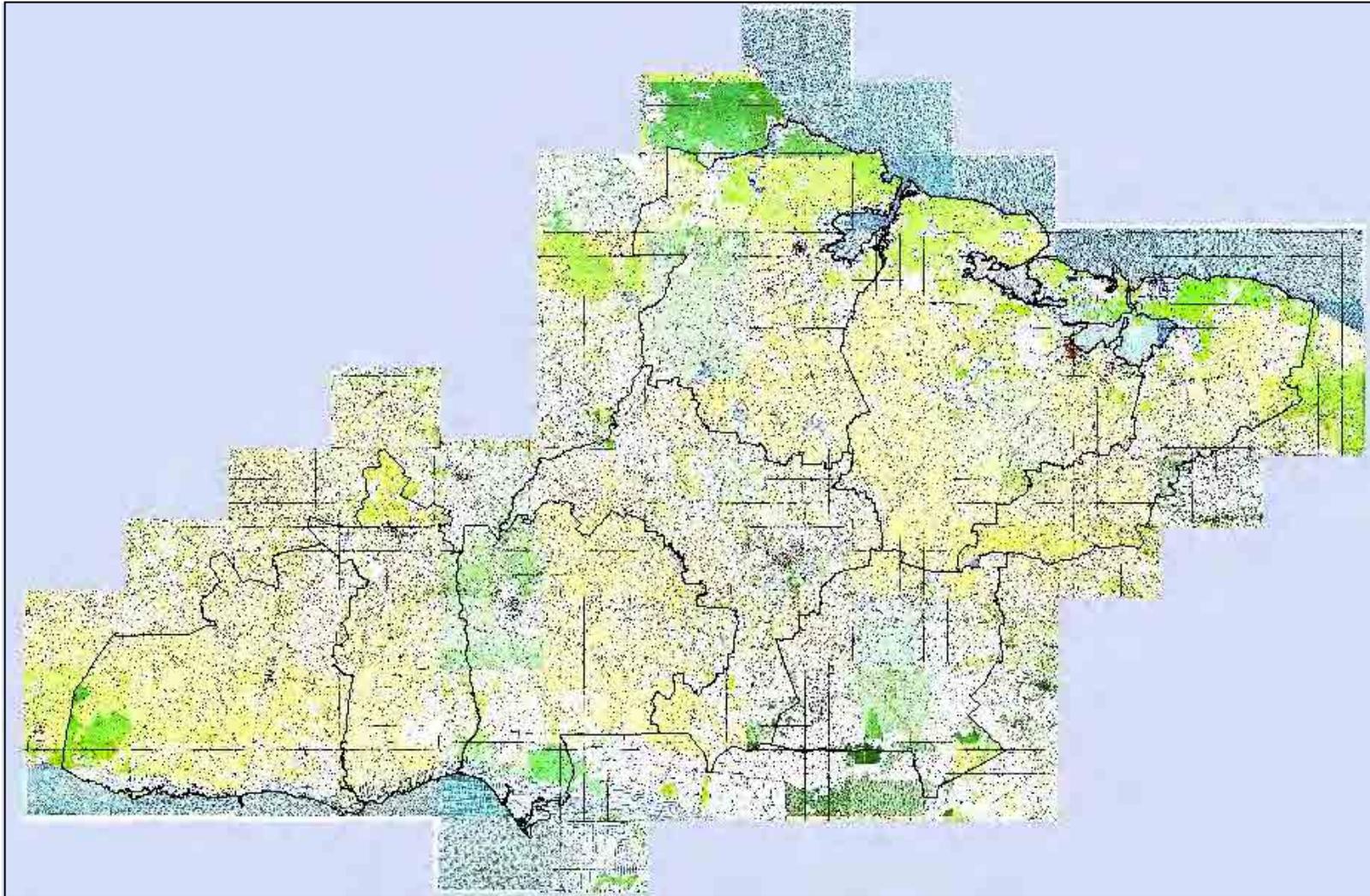
Water Supply System in Manati City, Las Tunas Province



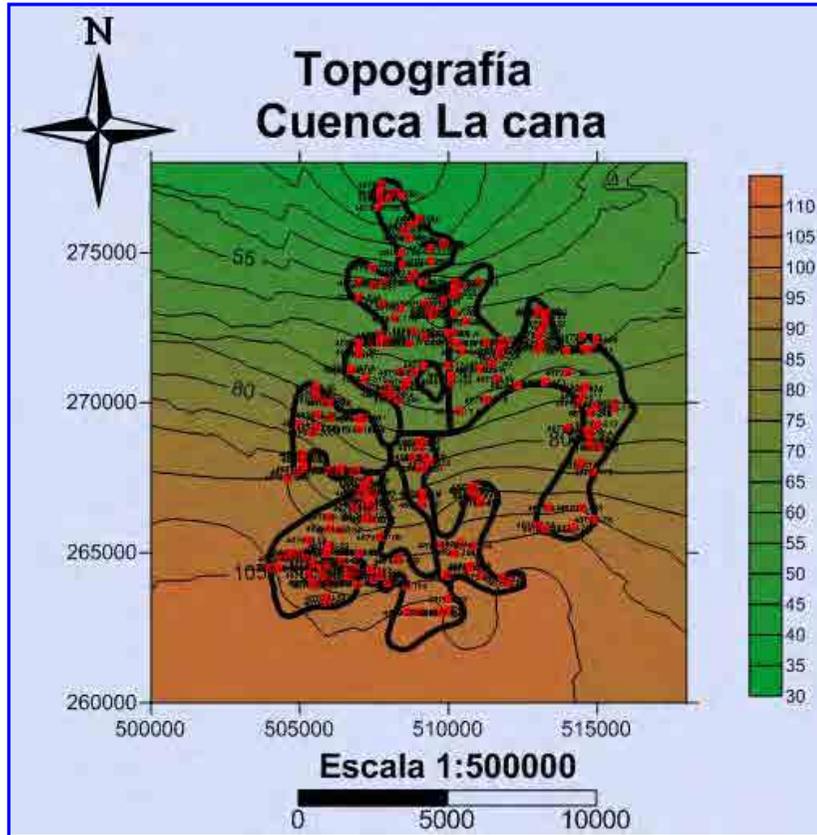
Withdrawal Capacity of Wells in Las Tunas Province



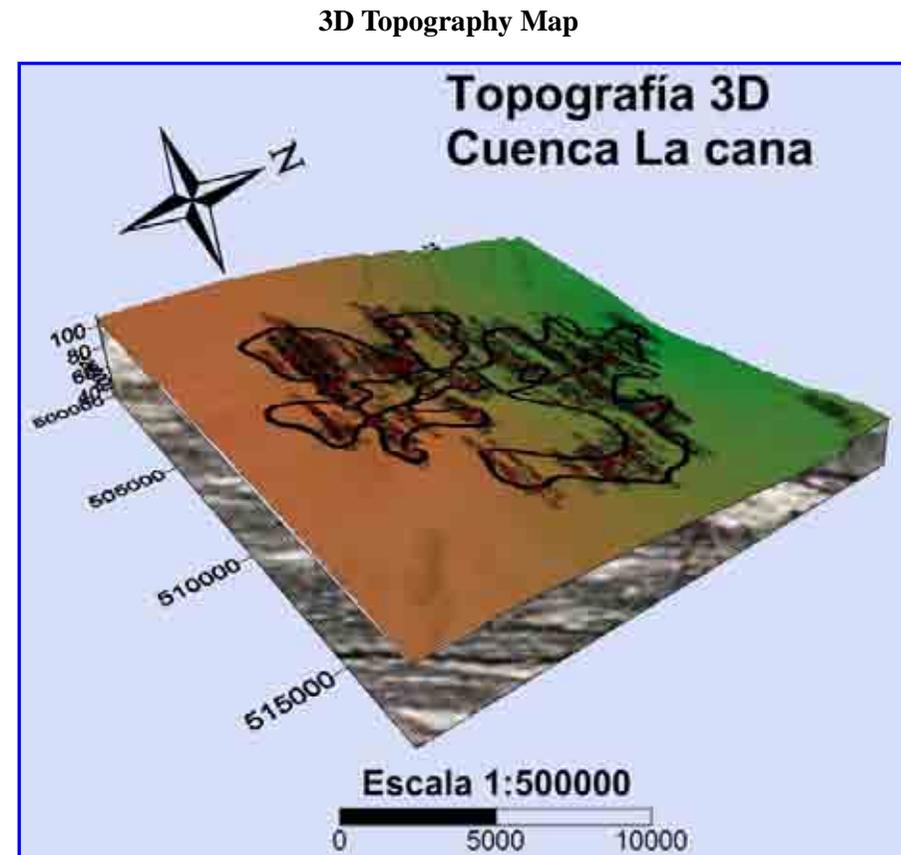
Georeference Result of Existing Topography Maps in Lau Tunas Province



Topography Maps of Area Cuenca La Cana, Lau Tunas Province

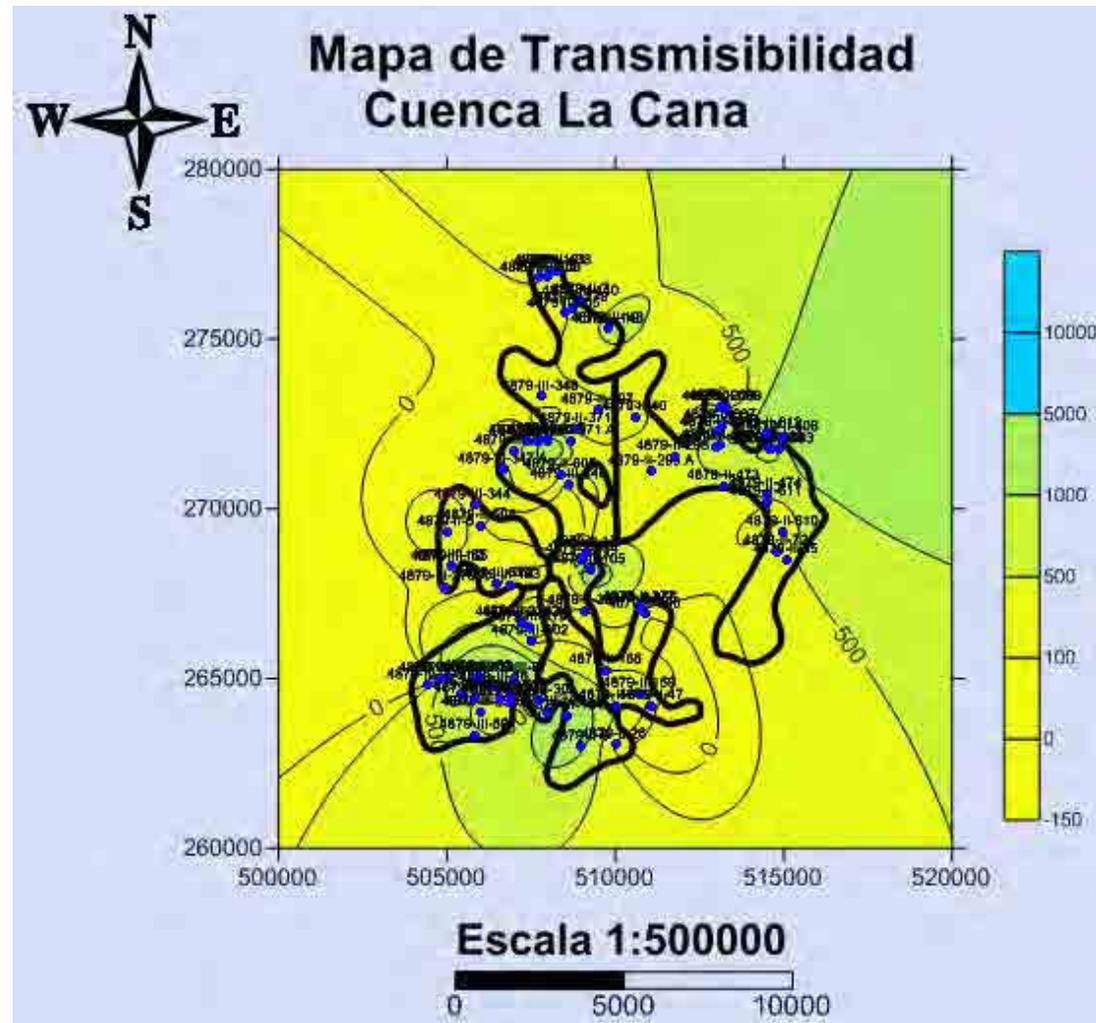


2 D Topography Map

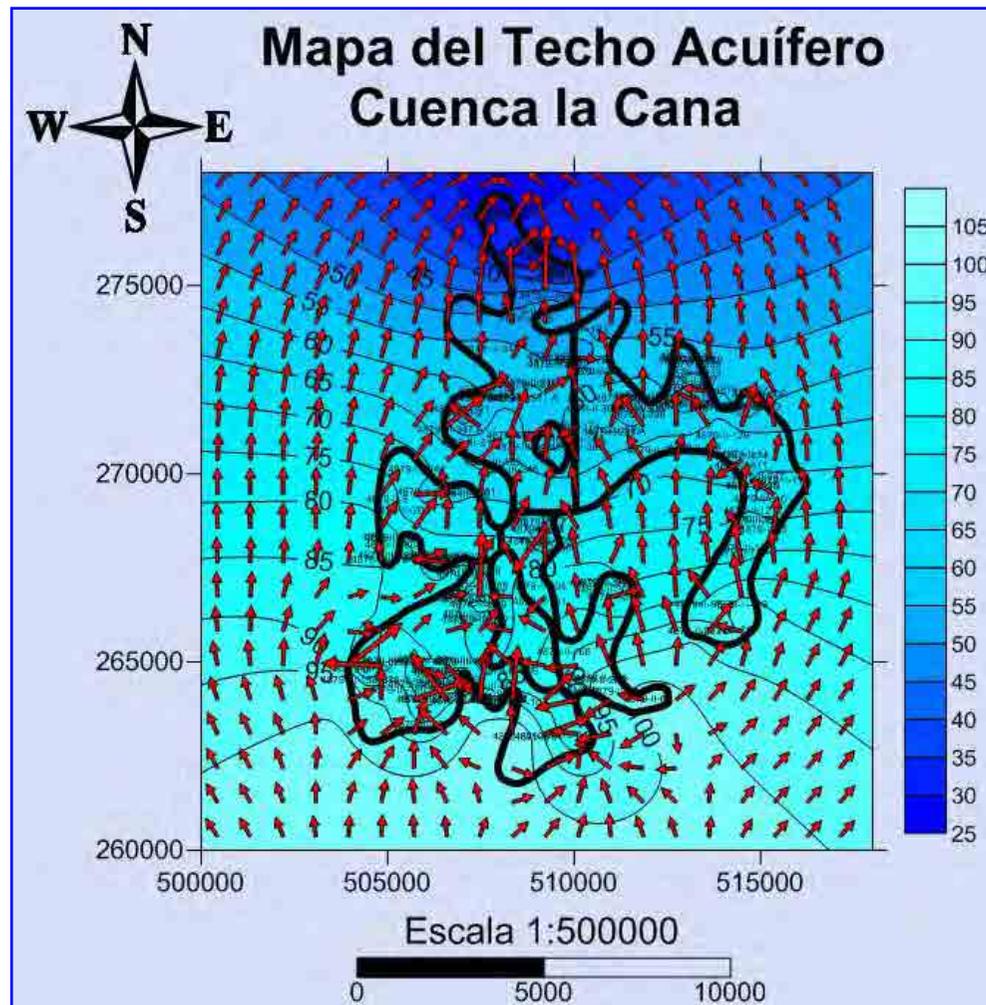


3D Topography Map

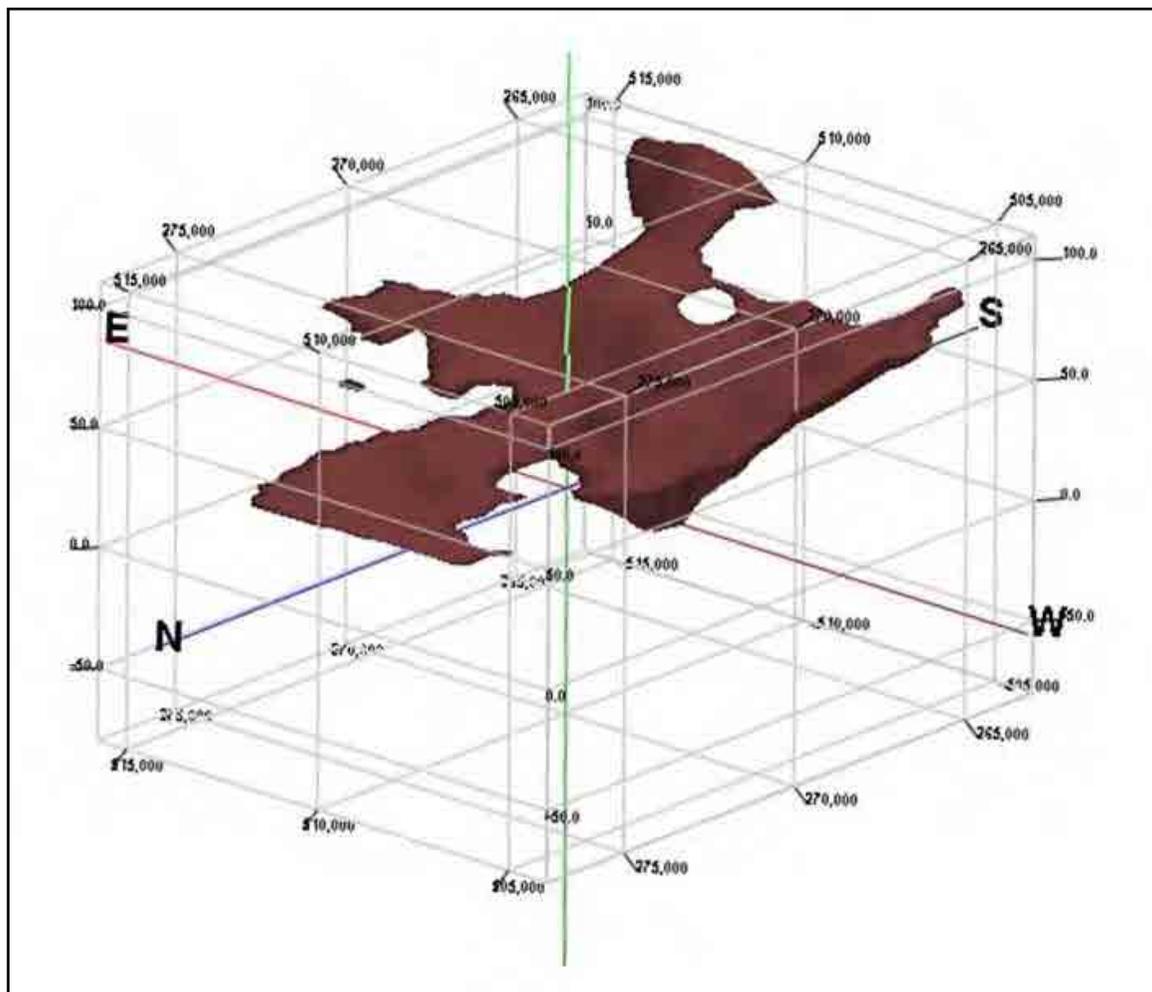
Transmissibility Distribution Map of Cuenca Cana Area, Las Tunas Province



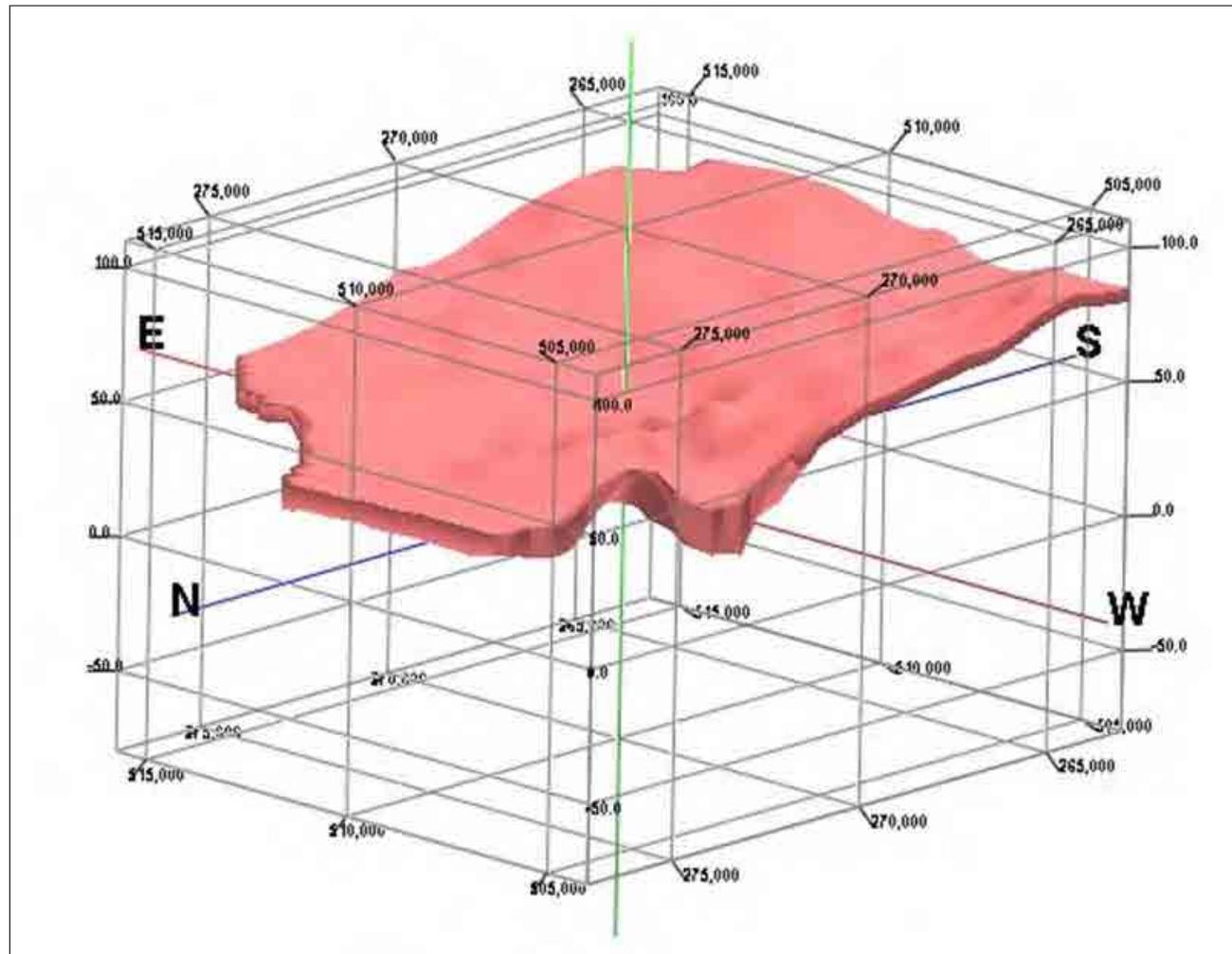
Groundwater Level and Flow Direction in Cuenca Cana Area, Las Tunas Province



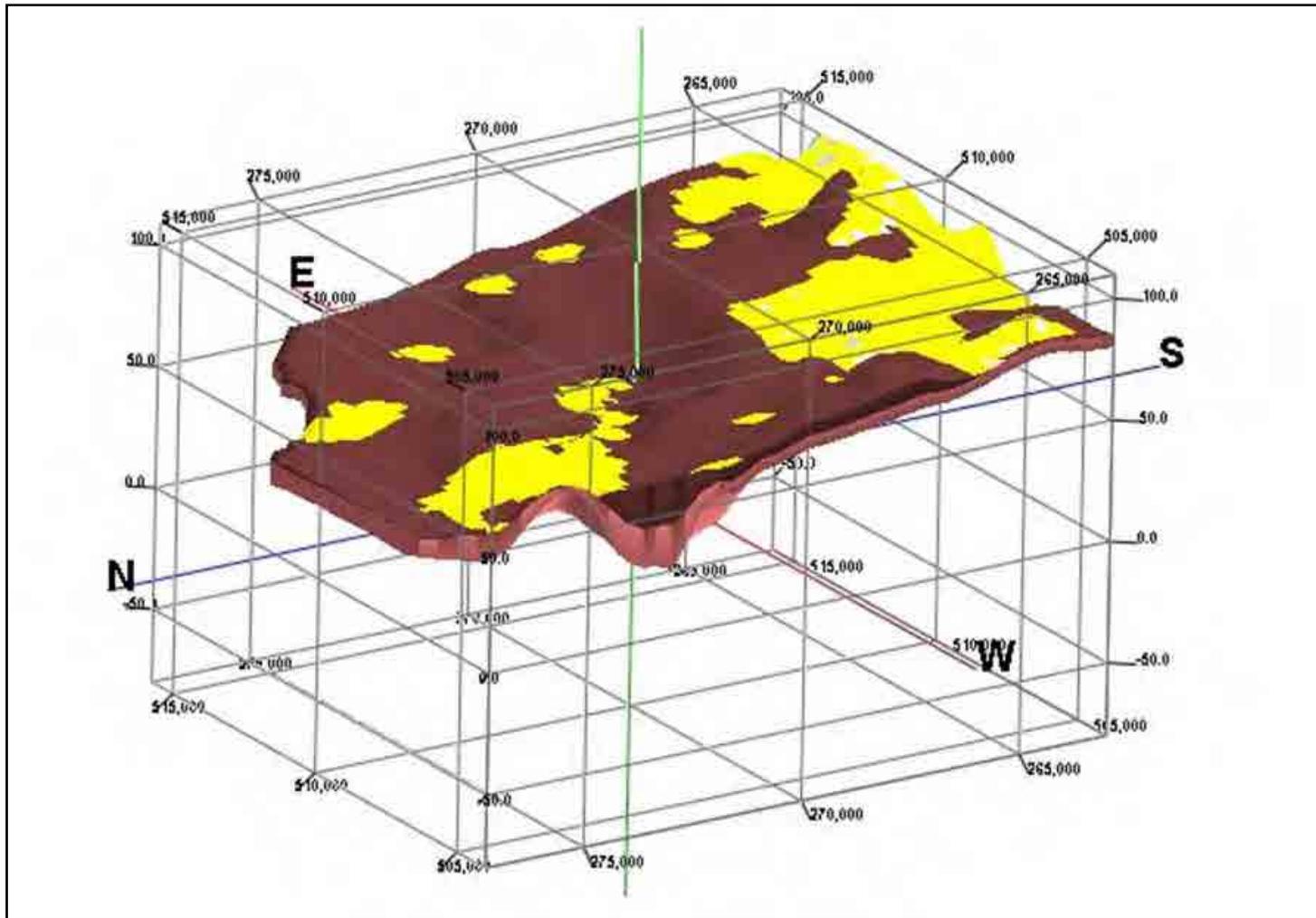
3D Aquifer_1 Distribution Map in Cuenca Cana Area, Las Tunas Province



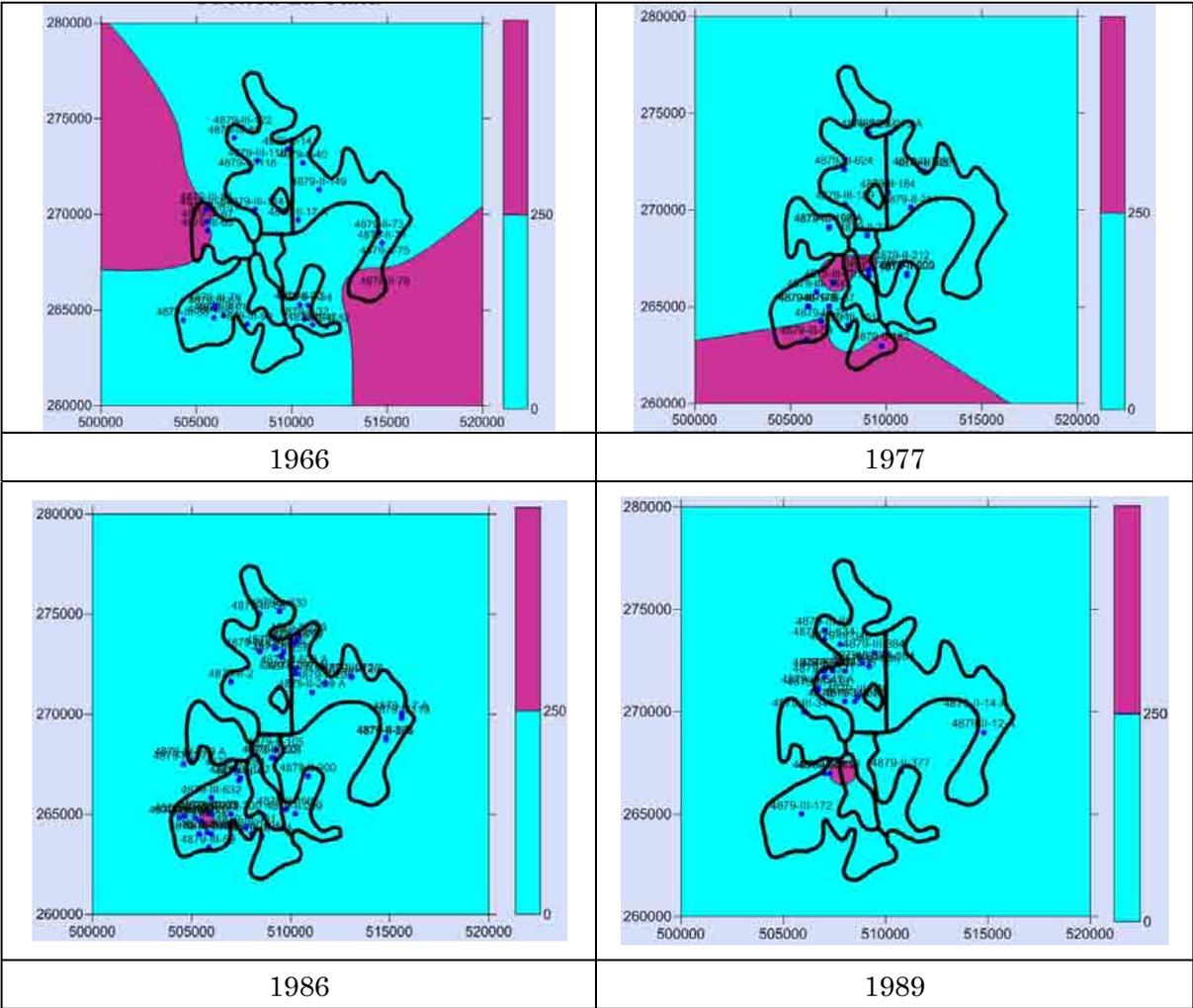
3D Aquifer_2 Distribution Map in Cuenca Cana Area, Las Tunas Province



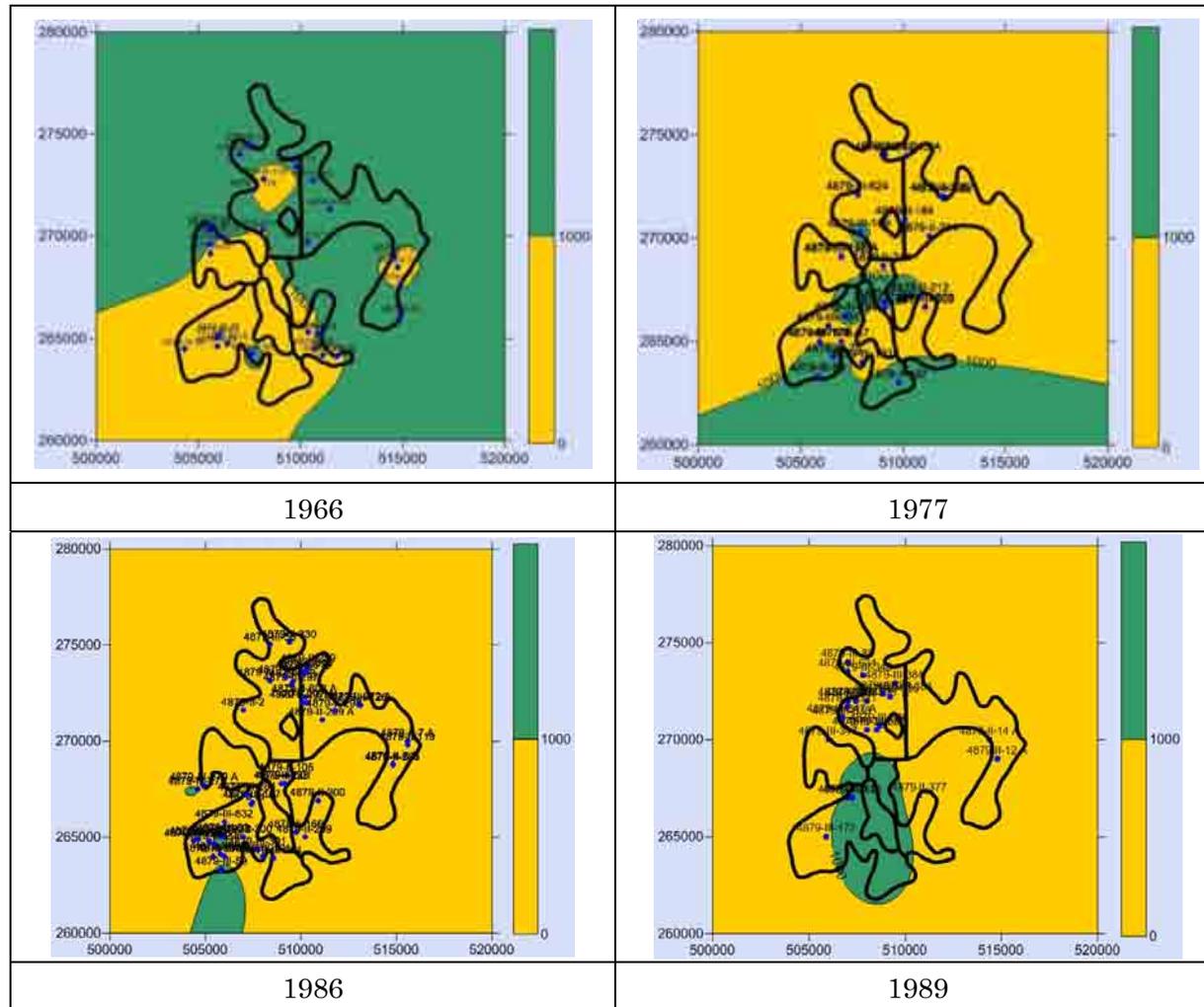
3D Aquifer_Total Distribution Map in Cuenca Cana Area, Las Tunas Province



Change of Groundwater Quality (Chloride) in Cuenca Cana Area, Las Tunas Province



Change of Groundwater Quality (TDS) in Cuenca Cana Area, Las Tunas Province



Change of Groundwater Quality (NO₃) in Cuenca Cana Area, Las Tunas Province

